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AMERICAN VETERINARY REVIEW.

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EDITED AND PUBLISHED MONTHLY BY

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EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, FRANCE, February 15, 1906.

WHAT IS NAVICULAR DISEASE? What are the etiology and the pathogeny? These are the two important questions that are treated in a study published in Professor Leclainché's *Revue* by Mr. Pecus, Army Veterinarian, an indefatigable worker, and a prolific writer on very interesting subjects. The answer to the first question I may be allowed to answer at some length; that to the second more briefly.

The definition given of this disease by French writers varies. For Cadiot and Almy, it is a synovitis of the navicular joint, complicated with tendonitis and osteitis. Lesbre considers that the osteitis of the small sesamoid is consecutive to traumatism of the perforans tendon sliding upon the sesamoid groove. Another author thinks that it is an osteitis of the navicular bone with cartilaginous decortication, with wearing out of the tendon and synovitis as sequelæ. By others, again, the disease is classified as osteism or osteitis from overwork (*osteite de fatigue*).

Mr. Pecus considers it as a symptom of dry arthritis, and without giving the opinions of more authorities on this question, he says that from the above definitions it is clear that there is a great difference in the appreciation of the intimate essence of this affection, which was spoken of at the beginning of the

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Mr. Pecus considers it as a symptom of dry arthritis, and without giving the opinions of more authorities on this question, he says that from the above definitions it is clear that there is a great difference in the appreciation of the intimate essence of this affection, which was spoken of at the beginning of the

19th century. At any rate, laying aside for a moment the question of the real etiology, Mr. P. asks: if, after all, the alterations of the navicular apparatus constitute the entire affection of navicular disease, and in answer says he does not believe it, and that he will show that this affection is always accompanied by polyarticular lesions, with peripheric and sometimes central vascular and nervous lesions, which are the evident imprints of the passage of a general infection of the organism.

* * *

The observations that were gathered by Mr. Pecus, five in number, show that if the small sesamoid or navicular bone is affected with non-suppurative chronic osteo-myelitis with dry tendo-synovitis, there are also in many arthrodias of the affected leg positive lesions of dry arthritis, which are not looked for, and yet have never been absent in the autopsies he has made. The following is the *résumé* of those autopsies:

Observation 1. — A twelve-year-old horse, destroyed for fracture of the right humerus, shows lesions of right anterior naviculartharitis, dry polyarthritis, endocarditis on the left side. The polyarthritis involved almost all the articulations of the right fore leg.

Obs. 2. — Mare, eleven years old, died with double pulmonary congestion. Navicular disease of both fore feet; symmetrical lesions of dry arthritis from the knees down, neurotomy of the right anterior leg.

Obs. 3. — Horse, six years old, destroyed because of anterior laminitis and naviculartharitis. Myelitis and encephalitis; dry arthritis of the four extremities; aortitis.

Obs. 4.—Horse, 11 years old, died of diaphragmatic hernia, with violent hæmorrhage into the pleural cavity. Navicular disease of the four extremities; generalized lesions of dry arthritis.

Obs. 5.—Mare, 17 years old, severe naviculartharitis, with fracture of the navicular bone. Disparition of the plantar aponeurosis; insertion of the perforans directly on the small sesamoid; dry polyarthritis.

To resume: At the examination of all the joints of the extremities of these five subjects, symmetrical lesions have been found in a greater or lesser number, reminding of the dry arthritis or chronic rheumatism of man, and among them those of the radio-carpal, carpo-metacarpal, metacarpo and interphalangeal, which we may say are always present in navicular disease; and in their presence, concludes Mr. Pecus, one is justified in considering this disease of horses as a symptom of a general affection belonging to the great catagory of the arthropathies, and peculiarly of dry arthritis as a mode of special termination of all species of chronic arthritis, be it of rheumatismal origin, due to traumatism, or resulting from an infection.

* * *

No; navicular disease is not only an affection of the small sesamoid apparatus; the post-mortems just considered have shown that many other articulations will present symmetrical lesions which existed on subjects affected with navicular disease, and if these polyarticular lesions class navicular disease among arthropics it is evident that vasculo-nervous lesions must also be found in connection with them, as it is observed in man suffering with those affections.

Let us see if there were:

For *arteries:* they were evident. In Obs. 3 and 4 lesions of mesarteriitis and endarteriitis of the plantar arteries were well marked.

For *veins:* In Obs. 2, 3, 4, and in another animal the digital and plantar veins were found also more or less diseased, with endo, meso and periphlebitis.

For *nerves:* those which had not been submitted to surgical interference, had not been divided, showed lesions of sclerosis of the interfascicular connective tissue — that is, perifascicular neuritis.

To resume: All the lesions met with in these observations of navicular disease can be gathered into two large groups: (1) *Local* lesions, of the navicular apparatus; (2) *general* lesions, *(a)* polyarticular reminding of dry arthritis or chronic rheuma-

tism; *(b)* vascular and nervous lesions which may be peripheral and sometimes central. Indeed, in the spinal cord of the subject of Obs. 3, the inferior longitudinal fissure of the cord had disappeared in some part. All the lesions had for characteristic that they were not only symmetrical on the anterior extremities, but also on the hind legs, but in lesser degree.

* * *

In relation to the etiology and pathogeny, the author enters into a long consideration and comparison of the nature of navicular disease, and the possible effects of general infection of the organism, and resumes his remarks by saying: We, then, will say that a first serious infection during youth may have left in the animal chronic inflammatory lesions, upon the bloodvessels and peripheric nerves and sometimes on large vessels and nervous centres; also on the various arthrodias, on the bony marrow of the navicular bone and sometimes on that of other parts of the skeleton. All those lesions of infection of an absolutely healthy animal, may occur in a predisposed, arthritic, herpetic, or on a low conditioned organism, such as may be produced by physical overwork, acute disease, distemper, pasteurellose, rheumatism, etc., and then appears the manifestations of the affection which in reality is but a symptom of non-suppurative chronic infectious osteo-myelitis, accompanied by dry tendo-synovitis upon the leg affected with vasculo-sclerosis of an animal which has become or was born arthritic.

In relation to the hereditary nature of the disease, Mr. Pecus, without solving the question, concludes on the necessity of excluding from reproduction all male and female subjects affected with navicular disease, no matter of what extent.

* * *

RADIUM IN RABIES.—Will radium, besides all the wonderful properties which we already know it to possess, enter into the domain of practical therapeutic use? is a question which seems to be justified, according to the notice printed in the *Bulletin of the Academy of Sciences*, which I find recorded in the *Semaine Veterinaire*. It says:

"Tizzoni and Bougiavanni have already mentioned the destroying action of the rays of radium upon the rabid virus when applied *in vivo* and *in vitro*. They complete and confirm their previous researches in a recent communication."

The rabid virus, decomposed *in vitro* by an exposure of 4, 6, or 36 hours to radium, is transformed into an excellent vaccine, which, inoculated in the eye of a rabbit, in one-drop dose, confers to this animal immunity against the virus of a dog made by subdural injection.

In vivo radium has also a powerful destroying power.

A subdural inoculation made on a rabbit does not give it rabies, if the animal is submitted to the rays of radium for one hour during eight consecutive days.

With animals inoculated for several hours in the eye or on the tract of the sciatic nerve, the curative effect of radium is most marked. The intensive treatment is very efficacious; all the animals are saved if treated 48, 86, or even 96 hours after the subdural inoculation of $\frac{1}{10}$ c.c. of fixed virus diluted in bouillon.

Even if the animal already shows a febrile condition, a loss in the initial weight, a marked weakening of the hind legs, a favorable result can be obtained, and from these results the authors conclude that treatment with radium rays will save an animal from death, even if rabies is already declared. Under the influence of the treatment the nervous symptoms will subside, the fever diminishes, and general improvement will take place, to be followed by recovery, while the control animal will die.

These effects obtained by radium are not by vaccination or serotherapy, and, therefore, radiotherapy is more indicated than either of them.

* * *

How Many Slaughtered Animals Can an Inspector Examine in One Day?—This is a question which has been discussed for a long time among German sanitary veterinarians, and no doubt will prove interesting for those of other countries.

The *Revue Générale* reports from the *Zeitschrift für Fleisch und Milchhygiene* the following extracts:

Henschel, of the Berlin Abattoir, admits that in one day one inspector can examine 75 bovines, or 200 pigs, or 250 calves, or 400 sheep; these figures can be increased by one-third or by one-half in cases of need.

Falk, of Stettin, remarks rightly that it is difficult to give figures. The conditions of inspection are numerous. If the service is made by only one inspector, there will be bacteriologic or microscopic examinations which will take much of his time. Therefore, in this question, the only point in view must be the simple pure examination, without consideration of more precise observations to be made later.

With new obligations imposed on the inspectors by new regulations, K. Muller, of Stettin, gives the following figures: 7 minutes for a bovine, 3 for a pig, 1½ for a calf, or for a sheep, 7 for a horse. Six hours of work only can be demanded of the inspector, with two rests of half an hour each. With those conditions the total of animals examined can be considered as follows, providing the inspector has an assistant to take his notes: 52 bovines, or horses, 120 pigs, 240 calves, or sheep.

Opel, of Cologne, allows only 3 minutes for a steer, 1 for a pig, 45 seconds for a calf, or a sheep. He also admits six hours of inspection, but gives three rests of half an hour each, leaving them only 270 minutes of effective work, which allow the inspection of 90 bovines, or 270 pigs, or 360 calves or sheep. At Cologne the inspector (veterinarian, of course,) has three assistants.

According to Gohler, a veterinarian can examine in six hours about 75 bovines, 300 pigs, or 360 sheep or goats. Tuberculous, measly, septic animals or those slaughtered by necessity are not included in these figures.

Taking an average of those indications, an inspector ought to examine daily, say, 73 adult bovines, or 220 pigs, or 280 calves, or 340 sheep.

I would be glad to hear from our inspectors in the large cities in the United States, and particularly from Chicago.

THE MICROBIAN FLORA OF THE NASAL CAVITIES OF HORSES.—The presence of some microbes, pathogenous for man and for animals, has been made out in forages, in surrounding atmosphere, in the digestive canal, and in the respiratory tracts; and the search for those microbes in the healthy organisms presents, to the point of view of the pathogeny of diseases, a great interest. Many are those who have already entered into this line of investigation. Dr. D. de Angelis, working in the Laboratoire de Recherches of Alfort, has directed his in a field which he believes not yet explored, and has recorded under the title of "Microbian Flora of the Nasal Cavities of the Horse" what he has found. His observations were made on ten horses, aged between six and twelve years. The material to study was obtained with the greatest asepsy possible with metallic threads carrying a ball of wadding, which was afterwards placed in sterilized tubes. Cultures were then made immediately on proper media. The nasal cavities of horses are, of course, exceedingly rich in microbes, and among the many were streptococci, staphylococci, cocco-bacilli, *Bacillus sublitis*, streptobacilli of various species and fungi. The streptococci and staphylococci were found in the material obtained from the ten horses, and it is with them that the Doctor made his principal experiments on mice, rabbits, guinea-pigs, and horses. His conclusions are: (1) that in the nasal cavities of horses there are constantly one streptococcus and one staphylococcus which have no pathogenous power for small laboratory animals, but which are able to give rise in horses to the apparition of very characteristic local and general troubles; (2) that by the morphologic or biologic characters, and the aspect of their cultures, these microbes are identical with corresponding and already known pathogenous types; (3) that repeated inoculations of their cultures to a horse does not confer apparent immunity against the appearance of a local lesion nor of the general symptoms.

* * *

THE USE OF MALLEIN AS A CURATIVE AGENT.—A short while ago, in looking over the REVIEW of August, 1905, my at-

tention was called to a resolution passed at a meeting of the Minnesota State Veterinary Medical Association, which related to a circular sent out by the Pasteur Vaccine Co., in which the curative properties of mallein in glanders were claimed, and mallein recommended for treatment. The resolution first denounced the suggestions and claims of the P. V. C., and secondly recommended that all members of the Association, "if any such have been misled by such advertisement into using mallein as a curative agent shall hereafter desist from using the same, inasmuch as it is detrimental and dangerous, and it is not to be recommended in practice."

The effects of this and possibly other resolutions coming from veterinary societies could not be overlooked by the P. V. C. without concern; and, as one of the results, I received the visits of the President and of the General Secretary, who came to explain to me what they thought the cause of the trouble. It seems that the redaction of the circular was due to the misinterpretation of an over-zealous representative of the company, who from the directions and documents he had received thought he was justified in stretching the facts so as to reach better results. I could not do otherwise than criticize the circular, and endorse to some extent the resolutions of my friends in Minnesota. I am happy to say that the officers of the Pasteur Vaccine Company have recognized the error that has been committed, and the result will be the immediate issuance of an entirely revised circular, in which all allusions to the cure of glanders by mallein will be removed, and a very satisfactory addition made at my personal request, viz.: "*as far as possible, supplies of this article will be made to the profession only.*"

* * *

I think it is the moment or never to say "all's well that ends well."

May I, however, in conclusion, make a few remarks upon the whole affair, which may serve to remove some of the severe effects that the Minnesota resolution may give rise to, and mod-

ify them. The question of the curative powers of mallein have already been discussed here; I have tried to keep our readers posted as to what had been done in Europe by Nocard; our esteemed collaborator, Dr. Schwarzkopf, has made known in the REVIEW results which cannot be ignored. The writings found in European literature are speaking for themselves. Then what? What do we read in that superior work of Nocard and Leclainché, "Lês Maladies Microbiennes," page 199: "A complete cure is certainly possible at the beginning of the infection. The destruction of the bacilli and the cicatrization of the lesions take place in some animals without any interference, and they are specially assisted by various medications, and principally by inoculations of mallein." At page 252: "Mallein has a curative action in certain forms of recent infection. Helman has obtained the recovery of a glanderous horse, and its complete immunization. Semner and Itzkvoitch have observed the recovery of a case of experimental glanders in a colt. Pilavios, Bonome, Vivaldi, Jones, Schindelke, etc., have observed the cicatrization of glanderous lesions, or the complete recovery under the influence of repeated inoculations of mallein." And not in France only, but in Germany, Semner writes: "A first point is beyond doubt. Glanders may be cured under appropriate treatment."

In the presence of such facts, is not the error committed by the P. V. C. excusable; and is it not another to ask all desistment in resorting to mallein? Do not use it as a curative agent, no more than any other drug; but do not ignore the value of work done by such men as those I have mentioned above.

* * *

ANSWERS TO CORRESPONDENTS.—A few answers to my private mail from America.

Dr. Daniel Lemay:—I have received your note, and was unable to answer it in my last "Chronicles" from want of positive information. Prof. Cognot, whom I met since, and to whom I presented your request, told me that the subject of the application of ambryl in the treatment of wounds was still under ex-

perimental consideration, and that the apparatus was not yet in the market. It seems that it will take a couple of months before your request can be granted. Be assured that I will not neglect it.

Dear Old Friend L. McLean:—Your letter arrived late, and the veterinary mouth speculum some ten days later. Your little circular and the plate adjoined to it told me of the instrument and of its advantages. As you say, it certainly commends itself to the profession for its simplicity and adaptation for almost all kinds of manipulations about the mouth. No doubt it will prove indispensable to many, and I can assure you I would have had it in my instrument box. There is no further fear for one to have his hands scratched, and attendants to sick horses, assistants, nurses, or stablemen, will certainly ask for a *vest-pocket veterinary mouth speculum* when giving a bolus to a sick horse. I showed the little jewel at the Société Centrale this morning, and it met with great success.

Dr. E. L. Lewis (*Waxahachie, Texas*):—There are quite a number of veterinary publications here, but if you wish that which I think the best, it is that published by Prof. Leclainché, of the Veterinary School of Toulouse, H^{e} Garonne. If you will write to him, you can, for the sum of 15 francs, receive the *Revue Générale de Médicine Vétérinaire*, semi-monthly. You had better mention my name, or that of the REVIEW. I am sure there will be no delay. I wrote to Prof. Leclainché to send you a sample copy.

Dr. S. H. Ward (*St. Paul, Minn.*):—I have transmitted your request to Mr. Carré and Prof. Vallée, and they have promised me to send you the publications on the subject. A. L.

Indexed.

IS THE TICK TO GO?

A strong movement is now on foot to secure the coöperation of the Federal Government and State authorities to put into operation the system that has been evolved by the long study of the life-history of the *Boöphilus annulatus*, which is almost a guarantee of its eradication from the cattle herds of the Southern States. The subject of Texas fever was thoroughly and

intelligently treated in a long article in the March REVIEW, from the pen of Dr. D. Arthur Hughes, who devoted a large amount of time to the collection of data from first hands, and placed his information and conclusions before our readers in that clear and decisive manner characteristic of all of his writings. It is unnecessary here, therefore, to do more than to tell of the shaping of the means which are underway to set in motion the machinery for the extermination of the etiological factor in the great Southern scourge.

A bill carrying an appropriation of $100,000 has been introduced in Congress by Mr. Ransdell, of Louisiana, and a meeting was arranged for with the Committee on Agriculture of the House, at which representatives of the Federal Department of Agriculture and a number of representative Southern men were present. These included Secretary Wilson, of the Department of Agriculture; Dr. A. D. Melvin, Chief of the Bureau of Animal Industry; and Drs. Marlatt and Hunter, of the United States Bureau of Entomology. The delegation from the South was made up of Profs. H. A. Morgan, of the Tennessee Experiment Station; A. M. Soule, Virginia Experiment Station; Col. R. J. Redding, Georgia Experiment Station; Mr. Wright, Assistant Commissioner of Agriculture of Georgia; Dr. Tait Butler, State Veterinarian of North Carolina; Dr. Ferneyhough, State Veterinarian of Virginia; Dr. W. H. Dalrymple, of the State University and Experiment Station of Louisiana; Mr. August Mayer, Shreveport, La., and others. The importance of the subject was fully recognized by the committee and the time allotted to the conference was extended to permit of a thorough discussion of the subject from all points of view. Each of the gentlemen was given a hearing, and Secretary Wilson, who was the last speaker, reviewed the subject *in extenso*, urging that the appropriation asked for be granted in the interests of the South, stating that large amounts of money had been given by Congress for the eradication of animal diseases in other sections of the country, and it was their duty to assist the South to get rid of a condition which had for so long

been an incubus on her live-stock industry. As a matter of fact, Secretary Wilson pointed out that it was this very disease which gave Germany her first excuse to discriminate against meats from the United States.

In a comprehensive and patriotic article in the New Orleans *Picayune* of March 1, Dr. W. H. Dalrymple, one of the conferers referred to, reviews the entire discussion by Secretary Wilson, and points out a practical method to deal with the subject. Concluding, he says: "We believe the cattle tick is doomed to extermination in the South. But it is a big problem, and will require the most hearty coöperation of all concerned, viz., individuals, local and State authorities, and the National Government, through its Department of Agriculture. Let us all get to work! American ingenuity, pluck and progress cannot be thwarted by a problem of this kind, however large it may appear. It is possible of solution with uniform effort. Let us get at it 'all together.'"

Later information foreshadows the passage of the enabling Bill, and when it does pass the money will become available at once, so that the Department may send its experts into the field without delay to begin a campaign of education among stockmen as to how to get rid of ticks as early as possible.

When this great task shall have been accomplished the American veterinary profession will have added another bright diamond in the diadem which it has been fashioning ever since the Bureau of Animal Industry was created. Pleuro-pneumonia, foot-and-mouth disease, dourine, Texas fever (?)! Will tuberculosis fall under the educational batteries of the modern veterinarian?

"THE JOURNAL OF TROPICAL VETERINARY SCIENCE."

We have received the first number of the above quarterly journal, published at Lahore, India, and edited by H. T. Pease, M.R.C.V.S., etc., Principal of the Punjab Veterinary

College, Lahore; F. S. H. Baldrey, F.R.C.V.S., etc., Professor of Sanitary Science in the same school, and R. E. Montgomery (on special duty for the British Government investigating the diseases of camels).

The editorial introduction, explanatory of the field which it desires to cover, is as follows:

"The investigation of the diseases of animals in tropical and sub-tropical countries has assumed such magnitude of recent years, and its vital importance in connection with the welfare and progress of the British Empire has become so widely recognized, that we feel no apology is needed for the publication of a periodical dealing with a subject that has acquired the dimensions of a special study and almost, if such were ever possible, that of a science apart

"It is now above a quarter of a century since the late Professor J. H. Steel, recognizing the demands of the times and foreseeing with a foresight characteristic of the man the requirements of the future, instituted the *Quarterly Journal of Veterinary Science in India.* This was in the infancy of the era of tropical research, at a time when Veterinary Surgeon Griffith Evans published his observations on the first known pathogenic trypanosoma, and Laveran made known the discovery of the parasite of malaria.

"One has only to glance over the scientific publications of the present day to appreciate the strides that have been made in the advancement of our knowledge of the Tropical diseases of man and animals, and to recognize how inseparable is one from the other; the further the research the more intimate becomes the union. Trypanosomiasis, spirillosis, piroplasmosis, anchylostomiasis, bilharziosis, filariasis and many others, are affections common to both, research into the nature of which is of importance to veterinarians and medical men alike.

"During the last two decades public attention has gradually, but none the less surely, been directed to this most important branch of social economy, until at the present time it has been found imperative for every Dependency and Colonial Possession to maintain a veterinary staff for the investigation of the indigenous stock diseases.

"This brings to our mind the question, is there in reality any disease of animals confined geographically to any one country in the world? What is more widespread than Texas fever,

or to be more exact bovine piroplasmosis? Every year the names of new countries have to be added to the already long list of those invaded. Perhaps we might make an exception in the case of South African horse sickness and a few diseases of a similar type, though it remains to be seen how many years will elapse before an identical condition, differing perhaps somewhat in virulence or receptivity, is diagnosed elsewhere. How many suspected the presence of dourine in this country five years ago? All knew that they were dealing with a serious disease, but few associated it with what was supposed to be confined almost entirely to Algeria. The same is true of others recently detected —hæmorrhagic septicæmia, white scour, etc. May it not be equally so of many other conditions which we are told do not exist in India? How are we to know? Those of us who make India the country for our life's work have but little opportunity of gaining a personal experience of the diseases most prevalent in other climes; we have to depend upon the word pictures given by our confrères beyond the seas, whose excellent and valuable reports for the most part remain hidden from our sight, are found embodied with a mass of statistical figures irrelevant to the subject at the conclusion of an Official Blue Book, or published in a language which may not be known to the ordinary worker, and only accessible to a very small majority of those veterinarians in other countries to whom the work would frequently be of inestimable value.

"This condition of affairs does not tend to widen our knowledge of the diseases of animals, and their geographical distribution, or to prepare those of us whom the exigencies of the Service may remove elsewhere, for the due appreciation of the pathological states prevailing in the new sphere.

"It is with the object of providing a means for the bringing about of that international interchange of ideas demanded by modern research, and of affording a medium for the publication of articles dealing with veterinary pathology and the allied sciences, as met with in all tropical and sub-tropical countries, that this journal is instituted. It is earnestly hoped that all interested in the subject will further this object by communicating the results of their inquiries to us for publication."

The *Journal* is well gotten up, in arrangement and typographical excellence, and the contents of the first number are interesting and valuable. The leading articles are: "A New Species of Trypanosoma Found in the Blood of Rats, together

with a New Metrical Method of Standardizing the Measurements of Trypanosomata," by Prof. A. Lingard, Imperial Bacteriologist to the Government of India; "Observations on Bilharziosis Among Animals in India," by R. E. Montgomery, M. R. C. V. S., I. C. V. D.; "Some Observations on Normal and Rinderpest Blood," by Captain F. S. H. Baldrey, F. R. C. V. S., etc.; "Tibarsa Surra—Trypanosomiasis in the Camel," by H. T. Pease, Principal Punjab Veterinary College; "Through What Agency is the Trypanosoma Evansi Carried Over from One Surra Season to Another," by Prof. Lingard. These leading articles are well illustrated, some in colors, and constitute splendid contributions to our rapidly developing knowledge of tropical diseases. In "Notes and Extracts," which complete the number, we observe that two articles from the REVIEW of last July are given place, viz.: Dr. M. J. Myers' "Diseases Prevalent in the Philippine Archipelago," and Dr. Dalrymple's notes on "The Tick Theory."

To all who are interested in tropical diseases (and what veterinarian is not?) we cordially commend the *Journal of Tropical Veterinary Science*, subscriptions to which should be forwarded to Messrs. Thacker, Spink & Co., Calcutta (price 17*s.* 6*d.*), while communications for the editors should be addressed to them at the Punjab Veterinary College, Lahore, India.

MEAT INSPECTION FOR THE U. S. ARMY.

Dr. D. Arthur Hughes, who has made an enviable name for himself throughout the veterinary world by his numerous articles in the REVIEW during the past two years, demonstrating that for deep thinking and the perfect capacity to transcribe his thoughts to paper in a forceful manner, he has few equals, has been appointed and transferred from Meat Inspection of the Bureau of Animal Industry at East St. Louis, to the Commissary Department of the U. S. Army. Few of our readers know that there is such a service for the veterinary inspection of meats for the Army. There are at present four Veterinary Inspectors, who, with Army Commissary officers, look after the details of the

contracts of the great packing companies with the Commissary. General of the War Department for army supplies. These are Dr. Johnson, at the Union Stock Yards, Chicago, who has been in the work with the Commissary Purchasing Agent of the Army (a Major in regular standing) five years; Dr. McKinney, of Kansas City, who has been there about the same length of time, and now two others, — Dr. Lytle, of Chicago, who has been with the Bureau eight years; and Dr. Hughes. These latter two were appointed March 3, one of whom will remain in Chicago, to be associated with Dr. Johnson, while the other will be sent to Omaha, to take charge of Army contracts there.

We have asked Dr. Hughes to write an article for the REVIEW on the subject of "Meat Inspection for the Army" as soon as he familiarizes himself with his new work.

WHEN FARMERS DIAGNOSE ANIMAL DISEASES.—"Notice has been given Live Stock Commissioner Kittrell of the existence of several cases of glanders in Tipton County. This is the one cattle disease that keeps the State Live Stock Department in fear, it being less easily suppressed than any others. There is a possibility of the stricken cattle in Tipton County having to be slaughtered to avoid a cattle plague, but Mr. Kittrell hopes that this may be averted. Dr. Zack Biggs, Assistant Live Stock Commissioner, left Thursday for Tipton County to investigate the trouble."—(*Nashville American, March 16.*)

The Live Stock Commission of Tennessee, we believe, is composed of a farmer and his assistant, an M. D., and the above item is a fair sample of the great "benefits" which flow to the people through the ridiculous system of appointing boiler-makers to blow bugles. It would be more reasonable to place veterinarians in charge of the bureau having to deal exclusively with diseases of the human family, yet the howl that would arise from the throats of outraged medical manhood would make the welkin ring. While our dumb brutes cannot rebel against the ignorance of incompetents dealing with their afflictions, the above quotation is a fair exhibition of the asininity of the system in vogue in many States and municipalities.

ORIGINAL ARTICLES.

DIAGNOSIS AND TREATMENT OF VENTRAL HERNIAS IN BOVINES.*

RÉSUMÉ OF CLINICAL LECTURES.

By Ch. Besnoit, Professor of Bovine Pathology at the Veterinary School of Toulouse.

In veterinary surgery, under the name of ventral hernias, are designated the tumors formed externally, under the intact skin, by the organs contained in the abdomen, which have escaped from it through an accidental opening of the abdominal walls. Therefore, they include all abdominal hernias which occur in other parts than through the inguinal or umbilical orifices.

Most of those lesions have dimensions so large and communicate with the abdomen by an opening of such size that their cavity constitutes an important annex, a true prolongation of the abdominal cavity. They would then deserve better the name *eventration*, under which they are so considered in human surgery. Unfortunately, custom has not allowed it, and wrongly the name of *eventration* is reserved, in veterinary medicine, to designate the penetrating wounds of the abdomen, complicated with protrusion outside of the sound or injured viscera.

In bovines four principal varieties of ventral hernias are known, according to the organ displaced: hernia of the rumen, that of the intestine, of the abomasum, and of the uterus. This last, intimately connected with gestation, belongs to the domain of obstetrics; it has specific origin, mode of development, and characters, which justify us in ignoring it—at least, in the general part of the present work. The three other hernias have many common characters, but they have also some specific signs, which allow a positive diagnosis, and permit us to distinguish between them and other abdominal lesions of similar aspect.

The following considerations, drawn from many private

* Translated by A. Liautard, M. D., V. M., from the *Revue Vétérinaire.*

observations and from the minute study of the classical descriptions and from the classical documents recorded in our professional journals, have for object to show the importance and the difficulties of the differential diagnoses of these various lesions, and to present as far as possible their essential elements.

COMMON SYMPTOMS.

Division.—Although identical to themselves in their general outlines, ventral hernias of bovines have, however, some differential characters, according to the causes which have produced them. To this point of view, they must be divided into traumatic and spontaneous.

The *traumatic* are due to the crushing action of blunt objects upon the stretched muscular abdominal walls, such as kicks, horn blows, falls, etc.; they are called *recent* or *acute* when they have existed but a few days, and *old* or *chronic* when of two or three weeks' standing, the local inflammatory symptoms of the first stage having subsided.

Spontaneous hernias develop by themselves, without external violence. According to some, they are due to excessive and long distension of the abdomen, as by repeated or gemellar pregnancies, by hydramnios, ascites, etc., among old and worn out animals; for others it is the exaggerated weight of the digestive organs in heavy feeders; and finally with others (Moussu) they must be attributed to atrophying nutritive troubles of the abdominal walls due to unknown causes. However this may be, under any of these influences, the abdominal muscles become distended, emaciated and thinned, the weak muscular fibres, pulled apart, separate, are torn, and a fissure is the result; this, little by little, enlarges, becomes a slit, and soon through it abdominal organs pass and locate under the skin.

Acute Ventral Hernia.—During the hours following the traumatism, the accident is indicated by the appearance, at any point of the abdomen, of a swelling, varying in size from a fist to a man's head. This swelling appears suddenly, immediately after the blow, and develops so rapidly that in a few hours it

has reached serious dimensions. On the spot the hairs are sometimes off, or there are marks of superficial excoriations, indications of the original cause. To the touch, the lesion seems slightly painful, not hot, somewhat fluctuating all over; it is soft and puffy, or again tense and rather elastic, according to the seat it occupies and the time of digestion. Taxis permits of a quick reduction of the protruding organ, and in the centre of the enlargement is then felt the tear in the abdominal wall, whose exact dimensions can be appreciated, through the skin, by the introduction of several fingers or of the entire hand.

After twenty-four hours the characters are changed; local and general phenomena of reaction occur. On a level with the lesion and at its periphery there appears a large œdema, which manifestly interferes with the explorating manipulations, and rapidly spreads in thickness and in superficies, principally downwards. This reaches its maximum of dimension towards the fourth or fifth day. At that time the thickness is such that attempts at reduction and exploration of the hernial opening are nearly impossible. At the same time, the appetite fails, the temperature rises, some tenths of a degree, indicating fever, which is often very slight and even sometimes missing.

After five or six days the symptoms diminish in severity. Gradually the œdema is reduced from upwards downwards, and has completely disappeared between the twelfth and fourteenth days, seldom later. The fever, when it exists, subsides, appetite returns as soon as the progression of the local symptoms has stopped. Then, free from the œdematous swelling which surrounded it, the lesion can be explored easily; it has all the characters of old or chronic hernias.

Chronic Ventral Hernia.—In this form the hernia is manifested by a soft, elastic, or semi-puffy tumor, fluctuating, indolent, without œdema on its surface or in its periphery. Reducible at first, it may remain so indefinitely. In other instances, the organs which form it contract adhesions with the internal face of the cutaneous sac, and then it becomes irreducible. The

hernial opening is easily felt, especially after the reduction. It is manifested by the presence through the abdominal walls of an indurated ring, thick, fibrous, resisting, which surrounds the base of the protruding mass. Besides, the tumor increases in size after meals; but, however, this sign may be concealed and overlooked when the hernial opening is of small size. Finally, the general condition is as satisfactory as possible; digestive functions, principally, are performed regularly.

The hernia grows more or less rapidly. After several months, it may have reached enormous proportions. Adenot has seen a ventral hernia measuring 0.70 centimetres in length and 1m.07 centimetres in width. I have myself often seen ventral hernias dropping down to the hocks, and which were more than 0.80 centimetres in length and in width. In those cases the hernial cavity, in free communication with the abdomen, contained a large portion of the abdominal organs; in them were found principally a large portion of the rumen, almost the entire intestinal mass, and even a gravid uterus in its entirety, when the female was pregnant. When developed in the neighborhood of the udder, these large hernias slip under it, and push it upwards. The organ is then displaced obliquely or vertically, and rests upon one of the lateral faces of the hernial tumor. (Fig. 3.)

When of little size, ventral hernias are compatible with life, and even permit of working or fattening of the animals; but when large, they, with time, give rise to digestive troubles which bring on loss of flesh and marasmus, prevent the animal from working, render it unfit for the butcher, and oblige the owner to send it to the knacker.

Spontaneous Ventral Hernia.—Under this form, ventral hernia takes from the start the characters of a chronic type, but its evolution is different.

Marks of traumatism, local and general phenomena of reaction, œdema and fever, all are missing.

Without appreciable cause, at a given time, there appears, on the inferior abdominal wall, a small swelling, soft and fluc-

tuating, elastic or puffy, more or less elongated and reducible, thanks to a hernial opening quite large and evenly elongated. First of little importance, the hernia enlarges, slowly, but gradually and regularly, especially during gestation, by pressure and the passage of the fœtus through the slit of the abdominal muscles. During that time the animal loses its appetite, and gradually becomes thin. After several months, in consequence of the excessive increase of the hernial opening, whose edges are no longer easily detected, the lesion has reached considerable size: there is almost no longer any separation between the abdominal and the hernial cavities, and the largest portion of the abdominal contents is directly lodged under the skin. At this advanced period, the general condition suffers. At first the animal becomes dull, has no appetite, no rumination, and the respiration is irregular; then diarrhœa sets in, rapid emaciation and marasm follow; finally, after a long period of permanent decubitus, the animal dies, or has to be killed by the knacker.

DIFFERENTIAL DIAGNOSIS.

The preceding description of the symptoms and mode of development are in general sufficient for a summary diagnosis. It is, however, proper to be able to be more precise: (1) to fix the characters which permit us to distinguish the different varieties of ventral hernias; (2) to look into the elements of the differential diagnosis in doubtful cases when confusion with other lesions of similar appearance might be possible.

A (1) Hernia of the Rumen.—This variety is not observed in very young animals, on account of the small size of the gastric reservoirs at that time of life. Its seat is almost exclusively on the left side, downwards or in the middle region, towards the hypochondria. Often, even after the disparition of the œdema of the first stage, it is not well defined in its periphery and remains poorly diffused. The alimentary mass that it contains renders it puffy to the touch. Reduction by taxis is possible, at least during the first weeks; but it is always difficult, and if

the hernia is a little large and heavy, it is often necessary to have the animal cast and placed in the right lateral or in the dorsal position. In this case also the rumen descends, leaves the superior part of the abdomen, and the hollow of the flank is much marked. Finally, percussion gives a dull sound and auscultation fails to reveal any abnormal sound.

(2) Hernia of the Intestine.—This hernia can be observed during youth ; yet it is more frequent in adults. It is generally admitted that its seat is on the right side, but, as will be seen further on, this rule is subject to numerous exceptions. It is met with the same frequency in all regions of the abdominal walls ; and even, exceptionally, on the thoracic wall, at the level of the hypochondria, by perforation of the intercostal muscles and of the diaphragm (Cadiot and Almy, and Guittard) ; indeed, it is known that in cattle this last muscle is very concave and inserted further than in the horse on the cartilaginous circle of the hypochondriac region, and that, besides, pushed forward by the large weight of the stomachs, it lays quite intimately on rather an extensive surface of the internal face of the thoracic walls. The tumor which is formed by the hernia is soft and elastic, with, sometimes, puffy or hard spots disseminated in its thickness, which are due to the presence of small alimentary masses. With rare exceptions, reduction is possible by simple taxis and without throwing the animal ; it is easier to reduce it when it is located low than when it is high, but in these last instances the return of the trouble, once it is reduced, is less rapid. Percussion gives a more or less tympanitic resonance, and auscultation perceives borborygms or gurgling noises, which are more marked and often become very loud during and immediately after the manipulations of the reduction.

(3) Hernia of the Abomasum.—Hernia of this organ is rare. Firmly attached to the right sac of the rumen, it is displaced with difficulty. It appears more frequently in sucking calves than in adult animals. This is due to the enormous size of the abomasum and its more intimate contact with the abdominal walls during the first periods of life. However, it is not excep-

tional in adults, as it is proved by the numerous observations of Deguilhem, Serres, Dandrieux, Guittard, and Delsol. It is constantly located on the inferior part of the right flank, although Guittard has recorded one case where it was in the left flank. Considering the position and the normal relations of the abomasum, resting on the right sac of the rumen, it is difficult to understand the possibility of such location, unless by an anatomical abnormality. It develops ordinarily back of the hypochondria, a few centimetres from it; in adults, where the organ is less developed and lodged more deeply in the concavity of the diaphragm, it may also appear in one of the last intercostal spaces (Deguilhem). Always rather of small size, it has seldom more than 15 to 20 centimetres in diameter; when it is larger, it is because the hernia is mixed and that by a free tear in the flank the abomasum and some intestinal circumvolutions have escaped (Dandrieux). Then the intestine forms the essential part of the tumor, and the dominating symptoms are those of hernia of the intestine. It is almost always elongated and often piriform. To the touch it feels soft, fluctuating, and gives the sensation of syrupy or pulpous contents, due to the specific nature of the food in the abomasum, milk or chyme.

The hernial ring, elongated and sometimes elliptical, is hermetically closed by the protruding organ widely spread around it. Reduction is easy, but requires pressure of the whole mass, with both hands, on the whole extent of the tumor, from its summit to its base. Return of the trouble occurs rapidly and takes place as soon as the taxis ceases.

Percussion gives a dull sound; auscultation reveals no special noise.

(4) Hernia of the Rumen on the Right Side.—The rumen being located in the left flank, it is comprehensible that, as we have already said, hernia of this organ should ordinarily occur on that side. Exceptionally, however, it may develop on the right, but then it is necessary that: (1) the rumen be largely distended by the food the animal has just taken, so as to take intimate contact with the right abdominal wall, and (2) that the

hernial opening should have large dimensions. In those conditions the exit of numerous intestinal circumvolutions always accompany that of the rumen, and a mixed hernia is the result. This is always of very large size and by its characters remind one both of the hernia of the rumen and that of the intestine. It is diffuse, not well defined, still less than in case of left hernia, especially towards the upper part. It is soft, fluctuating, or elastic in the parts corresponding to the intestinal loops, harder and more puffy with the rumen. Reduction by taxis is difficult, if not impossible, and must always be attempted in the decubital position. The puffy regions do not give any noise on auscultation, while borborygms may be heard over the intestines.

(5) Intestinal Hernia on the Left.—The seat for intestinal hernia is on the right, where it may occupy any region of the abdominal wall, from the linea alba to the hollow of the flank. It may, however, although it is true much more rarely, be met with in the left flank; but then it exclusively occupies the lower regions, under the rumen, in the neighborhood of the udder or between this and the fold of the stifle.

It may be simple, alone, or associated with hernia of the rumen. In the first case, it is formed through an opening sufficiently large to allow the exit of the intestine, but too small to let the rumen pass; it then offers all the classical characters of the right intestinal hernia. In the second case, it is developed by the passage of the rumen and of the intestine through a hernial opening, primitively large or progressively enlarged by the pressure of the gastric reservoirs, the intestine passing under the rumen to become in relation with the left inferior abdominal wall. The characters of that hernia are those of the mixed hernia on the right.

I have observed several cases of intestinal hernia to the left, and figures 1 and 2 show two of them.

Cow No. 1 had a simple intestinal hernia, measuring 70 centimetres in length and 45 in width, about; it occupied the entire lower region of the abdomen, from the stifle and udder to the sternum. It had developed through a small opening situated

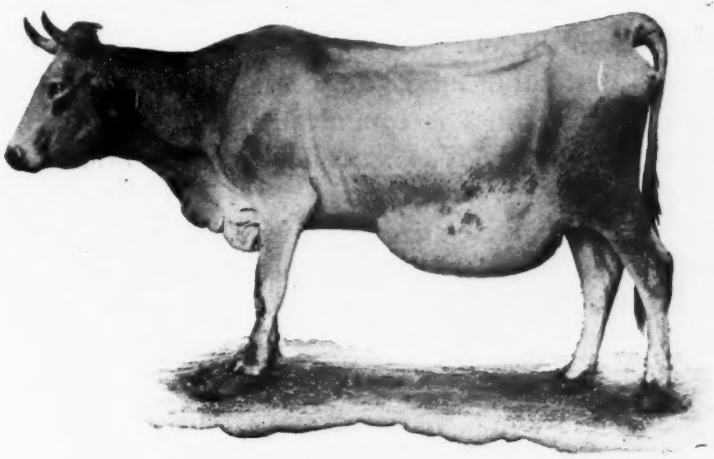

FIG. 1. INTESTINAL HERNIA.

immediately below the fold of the stifle, in which were engaged numerous circumvolutions of the small intestine and a few from the colon. The rumen was not displaced. The diagnosis was easy, the lesion presenting all the classical signs of intestinal hernia. Fig. 2 shows an intestinal hernia to the left, mistaken for an abscess. We will consider that case further on.

FIG. 2. LEFT INTESTINAL HERNIA AND ABSCESS.

(6) Uterine Hernia.—Also called *hysterocele.* It is frequent in old cows and develops, during gestation, at the postero-

inferior region of the abdomen, on either side, but oftener on the right than on the left. It is large, and presents all the aspects of big intestinal or mixed hernias. Inguinal, the diagnosis is easy, but sometimes is complicated with the presence in the hernial sac of numerous intestinal circumvolutions mixed with the gravid uterus.

Hysterocele is characterized by a regular and constant increase of the tumor, which often reaches fabulous proportions. Besides, methodical exploration reveals the presence of a fœtus in the hernial sac; by palpation some hard and movable parts are felt; auscultation discovers the cardiac sounds, if gestation is advanced, and careful watching may sometimes detect the motions of the fœtus. At any rate, the rather frequent presence of the intestine with the uterus in the hernial sac is indi-

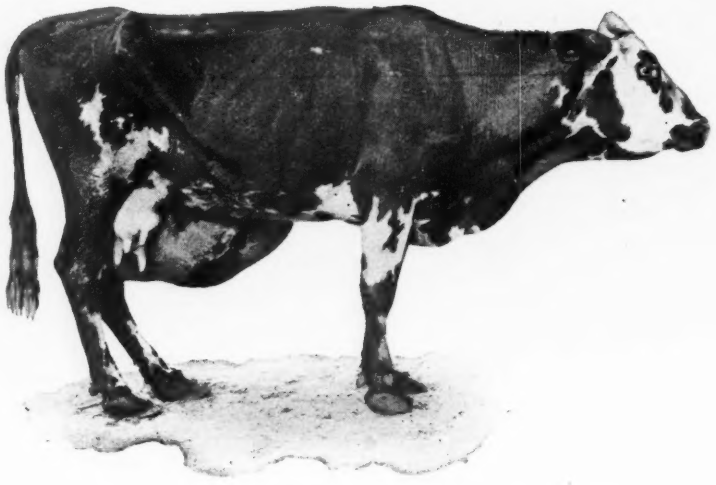

FIG. 3. INTESTINAL AND UTERINE HERNIA—POST-PARTUM.

cated by greater fluctuation and by borborygms through auscultation. Fig. 3 represents a mixed hernia of the uterus and of the small intestine, on the left side, immediately after delivery. Fig. 4 is that also of a mixed hernia, but before delivery, in the eighth month of gestation: it is bilateral, more voluminous on the right than on the left side.

B (1) Abscess.—Two cases may occur that we will consider

successively: a ventral hernia may be taken for an abscess or *vice versa* an abscess of the abdominal walls may be taken for a ventral hernia.

(a) Ventral Hernia Taken for an Abscess.—The error is possible and even quite easy under some circumstances. First of all, the hernia at the start gives rise to the appearance of local inflammatory phenomena similar to those of abscess; they may be sufficient to deceive. In the second part, the hernia may coexist with an abscess. Whether it develops consecutively to the inflammation of the contents of the hernial sac (Bouley) or, on the contrary, has been primitive and has become complicated with hernia by the work of suppuration of the abdominal wall. In the first case, the error is possible but exceptional. It can occur only at the beginning of the trouble and cannot last beyond the time necessary for the resorption of the œdema and of the exudates —that is, more than five or six days. It is due to the detection of a swelling, which is hot, painful, œdematous, principally fluctuating, giving rise to slight febrile reaction. The fact that there is no increase in size after meals, that the tumor cannot be reduced, the absence of a hernial opening, and, above all, the progressive, quick, and relatively considerable increase of

FIG 4. INTESTINAL AND UTERINE HERNIA (ANTE-PARTUM).

the lesion will almost always insure a diagnosis. In the doubtful cases it will be sufficient to wait five or six days to see all the signs of local inflammation disappear. If, finally, one cannot wait, an exploring puncture and rectal exploration will give precious information. The puncture made with a fine sterilized trocar is without danger, and will reveal the nature of the contents of the hernial sac—pus or food. For the rectal exploration it will, if the seat of the lesion can be reached with the hand, reveal the presence of the perforation through the muscular structure of the abdomen.

An example of this error of diagnosis has been related by Deguilhem. It was a tumor formed on the level of one of the last intercostal spaces, about the size of a fist, hard on its borders, fluctuating in its centre, and irreducible. With such characters an exploring puncture was indicated, as it would have prevented the opening of this supposed abscess and the serious sequelæ which would occur from that unfortunate surgical interference.

In the second case, the diagnosis is more delicate. When the hernia is associated with an abscess, the characters belonging to this one are first mixed with those of the hernia, but after a few days they are more prominent than them; they conceal them. Error is then easy, not only at the beginning, but also beyond the period of local reaction of hernias, as even at that time the characters of the abscess are not clearly appreciable. Nevertheless, when an exploring puncture shall have revealed the presence of pus in a tumor of the abdominal walls, the possibility of a hernia co-existing with the abscess must always be admitted and prudent action indicated. Yet, in some cases, a slight increase in the size of the tumor after meals, a quick and important progress in the lesion and in the most fortunate circumstance, the constancy of the hernial opening, by taxis or rectal exploration, will render suspicion of the nature of the accident and finally insure the diagnosis.

Examples of mistakes of this nature are numerous. To mention only a few, I will relate briefly those of Ledoyen, of Dela-

marre and of Daprey. The cow observed by Ledoyen had on the flank, since the previous day, a swelling as big as two fists, and consecutive to a blow from the horn of another animal. First taken for an hæmatoma, the tumor soon changed in characters, progressively increased in size, became fluctuating in the centre, with thinning of the skin, and then was considered an abscess. Puncture gave escape to pus and to an intestinal loop. Surely the diagnosis was delicate; yet the rapid and enormous increase of the tumor, notwithstanding the well-marked signs of abscess, ought to have created suspicion of the co-existence of hernia with the abscess. . . . Delamarre has reported two cases of premammary intestinal hernia, one primitive, the other consecutive to an abscess of the same region, punctured and emptied six weeks before. Puffy and fluctuating, these tumors were taken for abscesses, and erroneously punctured. Their peculiar situation, immediately in front of the udder, and their clinical characters, are sufficient to explain the error of diagnosis. . . . Daprey has also mentioned five cases of intestinal hernia of the flank wrongly considered as return of abscesses opened and recovered for several weeks. These last observations show with what circumspection one must act before deciding in a case of apparent abscess of the abdominal walls, even and especially when the lesion is located about the udder.

Among several personal examples, I will again mention on this same subject the following case: A worn-out cow (Fig. 2) brought to the school for surgical exercises, had, on the lower part of the left flank, a tumor, rather elongated and about the size of a decalitre. It was hard, very adherent by its base to the abdominal walls, irreducible, and besides with detectable hernial opening. Above and back of it there was a fluctuating point which accidentally ulcerated, during one examination of the animal. Quite a large quantity of pus escaped. The cow was not in calf; the hollow of the left flank was not dropped and the tumor did not increase in a sensible manner after meals. We discarded at first the supposition of a hernia of the rumen or of the uterus, to admit simply that of a large abscess. Al-

though the irreducibility of the tumor and its hardness on one side, and on the other the rarity of intestinal hernia in the left flank, rendered the existence of this last lesion rather doubtful, we thought of the relative frequency of cases where the two accidents co-exist, and we decided to resort to an exploring puncture. This gave escape to an alimentary substance, and we came to the conclusion that both an intestinal hernia and an abscess co-existed. The post-mortem confirmed this diagnosis, and showed that the great hardness and the irreducibility were due to the fact that, instead of being lodged directly under the skin, the intestinal circumvolutions had slipped between the various muscular layers of the region, which thus contributed to a certain degree to the formation of the walls of the hernial pouch.

(b) Abscess Taken for a Ventral Hernia. — Abscess of the abdominal walls, especially if of rather old date, are sometimes manifested by local phenomena of reaction, badly marked, more or less attenuated, and whose precise meaning is not understood. In this case a hernia may be suspected. But if, in those conditions, error is easy and more frequent than in the preceding instances, it is also very much less serious. Indeed, either the diagnosis being doubtful, one will wait in expectation and the abscess will open of itself, or again a surgical section will be resorted to, which will be a fortunate one, as it will insure a hasty escape to the pus, and realize a more rapid recovery of a benignant accident. Exploring puncture, followed by free incision, with methodic and prudent exploration of the cavity of the abscess, constitute the most precious means of diagnosis.

As an example, I will recite the following personal observation: A cow (Fig. 5) has for several weeks had on the middle region of the left flank, immediately back of the hypochondria, a tumor, due to a traumatism. At first small, it has rapidly increased in size, little by little descending into the lower parts, so as to reach to the mammæ. The veterinarian who treated her, after a few days of observation, concluded that it was an incurable hernia of the rumen, and sent her to the school for the surgical class.

When I saw the animal I observed the presence, on the left infero-lateral part of the abdomen, from the cord of the flank to the premammary region, of a large irregular tumor, bosselated at some points of its surface, more prominent towards the middle part of the flank and immediately in front of the udder. It is hard, except at the most prominent parts, which are fluctuating. It does not enlarge after meals; is irreducible and painful, especially at the fluctuating spots. All these characters make us throw aside the idea of a ventral hernia (uterine or intestinal). There is no need to think of an abdominal cyst, as the characteristic and extensive fluctuation is not present. Notwithstanding the enormous dimensions of the tumor, we concluded that it was a large abscess, primitively developed on the flank, and having made its way towards the lower regions, to finally reach the premammary region, where a new purulent collection had formed. Exploring punctures made on the fluctuating spots confirmed the diagnosis immediately. The abscess was opened, freely incised in front of the udder, and seven or eight litres of pus escaped. In exploring the cavity with the finger first and then with a probe, a fistulous tract was traced which ran up the superior part of the flank, where a counter-opening was made. Drain tubes were put in place, and after six weeks, with antiseptic injections, cauterization of the fistulous tracts, etc., the cow was returned to her owner entirely recovered.

FIG. 5.—ABSCESS OF THE FLANK.

Omphalo-Phlebitis.—In calves hernia of the abomasum is not absolutely rare. We have seen it, located on the inferior abdominal wall, near the linea alba, between this and the inferior part of the hypochondria. Then it is situated not far from the

umbilicus, and can be, at the beginning, at the period of inflammatory reaction, mistaken for omphalo-phlebitis or for abscesses around the umbilicus from umbilical infection. In such cases, any surgical interference must be very cautiously resorted to. At any rate, the elements for the differential diagnosis are about identical with those that we have mentioned in cases of simple abscesses of the other regions of the abdominal walls. The increase in size after meals, reducibility of the lesion, the existence of more or less elongated hernial opening, and in doubtful cases the result obtained by an aseptic exploring puncture, will insure the diagnosis of the hernia.

(3) Hæmatoma.—Any violent contusion may give rise to the formation of an hæmatoma, a liquid tumor constituted by the escape of blood in the subcutaneous cellular tissue. The traumatism lacerates or destroys the connective tissue, while at the same time it produces numerous vascular ruptures, followed by bloody or sero-bloody important infiltration. Soon the escaping blood collects in the lacerated parts, separates, pushes away and raises the teguments, coagulates more or less completely, and the bloody tumor is formed.

Developed on the abdominal wall, this lesion may be taken for a ventral hernia, at a superficial examination, on account of its situation, its form, its size, which sometimes is enormous, or of the fluctuation which characterizes it, and the slightly indurated zone which soon surrounds it.

Yet it is quite easily differentiated from it, at least in the beginning, by the crepitation that it gives and which constitutes a pathognomonic sign. This crepitation gives a sensation somewhat analagous to that felt in squeezing a piece of lung tissue: it is due to the crushing under the pressure of the fingers of the clots of blood accumulated in the cavity of the hæmatoma. According to the importance of the coagulation within the cavity, the crepitation may be generalized to the entire tumor or only localized to the deep parts and associated with the fluctuation.

And, besides, the tumor is irreducible and does not increase

in size after meals. Moreover, it is soft, very depressible, and nothing is easier than to observe the absence of the hernial sac; the peripheric induration cannot be mistaken for it; and, at any rate, rectal examination would, in most cases, reveal the integrity of the abdominal walls. Finally, if some doubt still remains, an exploring puncture will settle the diagnosis by allowing the escape of pure blood or of bloody serosity.

Later the lesion disappears by slow resolution or undergoes cystic transformation, when it assumes all the characters of large serous collections.

Confusion between hæmatoma and ventral hernia is not exceptional. We have already mentioned the case of Ledoyen relating to a cow having a tumor on the flank, with wide base, quite well defined, hot, painful, and not depressible, taken at first for a bloody tumor, but in reality due to the association of an abscess with an intestinal hernia.

Fig. 6 represents an enormous hæmatoma of the middle region of the right flank in a cow brought to our clinic. The lesion was a little hard and tense, but uniformly fluctuating and slightly crepitating in its deep parts. On account of its large size and of its stretched condition, it was difficult to depress; attempts at reduction as well as researches for the hernial ring remained fruitless, and our students concluded it was an intestinal hernia. Puncture with a sterilized trocar gave escape to almost pure blood, and established the diagnosis.

FIG. 6.—HÆMATOMA ON THE FLANK.

(4) Cyst.—The large serous collections that are observed on the walls of the abdomen, due most commonly to the cystic formation of big hæmatomas, have more than one character of some ventral hernias, and princi-

pally of chronic intestinal hernias. Like these latter, they are soft, depressible, uniformly fluctuating, and without inflammatory manifestations. But, on the other side, they do not enlarge after meals, they are accompanied by dropping of the hollow of the flank, they are not reducible by taxis, and not the slightest mark of abdominal perforation can be detected; besides these, auscultation fails to reveal any peculiar noise and exploring puncture gives escape to an abundant quantity of serous fluid.

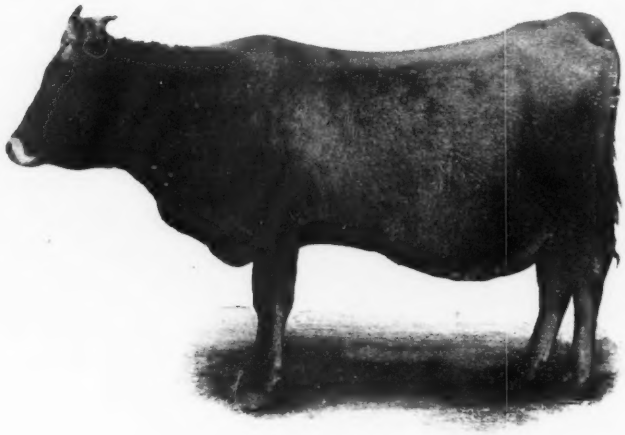

FIG. 7 —ABDOMINAL CYST.

The elements of the differential diagnosis are not, however, so clearly marked. Some years ago I reported the clinical story of a cow affected with an enormous abdominal cyst (Fig. 7), in which they were most all missing. This animal presented a large swelling on the left infero-lateral side of the abdomen. It had made its appearance several days after the last parturition, and had regularly enlarged, spreading laterally, and finally running up towards the left flank. Little by little it had reached very large dimensions, spreading forward as far as the hypochondria and sternum, behind to the stifle and even along the median line as far as the perineum. At the same time the digestive functions became poor, diarrhœa had set in, and the animal lost considerable flesh.

This lesion presented well all the characters common to

cysts and chronic intestinal hernias; softness, elasticity, fluctuation all over and uniform, absence of inflammatory symptoms, but the specific symptoms of cyst were almost all missing. To the touch and palpation the tumor seemed partially filled with puffy, thick matter, which could be supposed as being caused by accumulations of semi-solid fæcal matter in the intestinal circumvolutions; it was simply due to partitions in the cyst and to the presence in these cavities of the cyst of numerous clots of fibrin. The diarrhœa, which had lasted a long time, had promoted a marked dropping of the right flank. The cyst, bound internally by the wall of the abdomen, pushed it back into the abdominal cavity and in such a manner that after each meal the digestive viscera, being full, pressed upon the abominal wall, pushed it outwards, and, with the cyst, the tumor then seemed to increase in size after meals. Finally, even the mode of development of the tumor seemed to plead in favor of a diagnosis of hernia, as it had appeared almost immediately after parturition to gradually acquire proportions, which surpassed very much the ordinary dimensions of serous collections.

It is true that the attempts made to reduce it had failed, and that, with rectal exploration, the hernial opening could not be found; yet this had no great importance, because the great size of the tumor made exploration difficult and even prevented the hand from feeling the abdominal wall. Under these conditions, exploring puncture was the indication; made, it allowed the escape of five or six litres of citrine serous fluid, and decided the true nature of the tumor—an abdominal cyst.

One must not, however, believe that this last sign may be sufficient, by itself, and in every case, to establish the diagnosis of hernia. Indeed, I had often met with ventral hernias where the internal face of the hernial sac had degenerated into a secreting cystic membrane and where the intestinal circumvolutions were floating in a large quantity of serous liquid. In such case a hernia could be taken for a cyst, as the following case will prove:

The cow represented in Fig. 1 was suffering with a very large swelling of the lower portion of the left flank. It was intended to use her for the clinical examination of students. A few of them having heard of it, went to the owner's barn to examine her at ease. At first they thought it was an intestinal hernia, but hesitated a little on account of the situation of the lesion on the left flank, and also in having failed to reduce it. They then tried to insure their diagnosis by an exploring puncture.

As a rather large quantity of serous fluid escaped, they changed their first opinion, and soon the news spread among the students that the cow which was to be presented at the clinical examination was suffering with an abdominal cyst. It was an error, as the animal was affected with left intestinal hernia, complicated with a collection of several litres of serosity in the hernial sac.

A last example of error between a cyst and a hernia is the following: A veterinarian sent us to be operated a cow suffering, according to his diagnosis, with an *old* and *curable intestinal hernia.* Indeed, the animal had on the right flank a tumor extending from the fold of the stifle upwards. It was elongated, irregular, a little contracted in its middle, hard above, soft, fluctuating, and filled with liquid in the lower part. This lesion was never tense nor elastic; it was irreducible, and the most careful external and internal exploration failed to detect any opening in the abdominal walls. No borborygms were heard at auscultation. Under such conditions, I found that my colleague had made a mistake. Nevertheless, I decided to make an exploring puncture with a fine aseptic trocar. A serous, rosy liquid escaped.

The trouble was a biloculated cyst, the tumor being slightly contracted in its middle and having different characters above and below the contractions. The extirpation of the cyst was done immediately, followed by quick and complete recovery.

(*To be continued in the May number.*)

DISPENSARY HINTS.

By Prof. George Judish, Ames, Iowa.

Presented to the Annual Meeting of the Iowa Veterinary Association at Ames, January, 1906.

After five years of impatient waiting the Eighth Decennial Revision of the U. S. P. finally made its appearance in July and became the official standard September 1st, 1905. Whilst the volume made its appearance two years later than usual, yet we can well excuse the delay on account of the excellence of the work. Many drugs and preparations heretofore unofficial were deemed of sufficient importance to merit recognition. In looking over the text we find that the present official pharmacopœia recognizes 958 articles—the 1890 mentioned 994. One hundred and fifty-five articles were dismissed by the committee of revision and 121 added. The titles of a number of official substances were altered. Synonyms are rarely given and it is to be hoped that practitioners and pharmacists will cease using them as they lead to no inconsiderable confusion. Under the head of approximate measures we find that the following values should be used:

"4 cc=1 fluid drachm=teaspoonful.

"8 cc=2 fluid drachms=dessertspoonful.

"16 cc=4 fluid drachms=tablespoonful.

"The standard temperature for the solubility of substances in liquids, for taking specific gravity, and for volumetric operations, is 25° C. or 77° F." In the former revision it was 15° C. or 59° F. This change was made because it would serve the convenience of the greatest number of pharmacists and laboratory operators. Laboratories and pharmacies will come nearer registering 77° F. the year around than 59° F. In September, 1902, a convention composed of delegates from nearly every civilized country, met at Brussels and was styled The International Conference for the Unification of Medical Formulas. The title explains the object of the conference. This body recommended the uniform strength of 10 per cent. for tinctures

of potent drugs, 1 per cent. for solutions of arsenic and that 1 c.c. of fluid extract represent one gramme of the drug. Our arsenical solutions and fluid extracts were of the strength recommended by this body, but it necessitated changing the strength of a number of the official tinctures. The most striking changes occur in the strength of tincture of aconite and tincture veratrum. Tincture of aconite formerly represented 35 per cent. of the root, veratrum 40 per cent.—they are now 10 per cent. tinctures. The tinctures of cantharides and strophanthus instead of representing 5 per cent. of drug, have been increased to 10 per cent. The tinctures of belladonna, digitalis, gelsemium and hyoscyamus were decreased 5 per cent. so as to conform to the international standard. The general rule is that tinctures of potent drugs contain or represent 10 per cent. of the article, the less potent 20 per cent. It is well to remember that all of the official preparations of opium contain or represent 10 per cent. of powdered opium, except the fluid extract and camphorated tincture. The latter contains $\frac{4}{10}$ of 1 per cent. Oleate of mercury is 5 per cent. stronger than formerly, containing at present 25 per cent. of yellow mercuric oxide. Syrup iodide of iron contains but 5 per cent. of ferrous iodide, formerly 10 per cent. This change was necessary in order to comply with the recommendations of the International Conference. Unguentum acidi carbolici is now official as unguentum phenolis, and contains about 3 per cent. of phenol instead of 5 per cent. One part of pancreatine U. S. P. 1900 must digest at least 25 parts of starch, whilst the standard was not fixed by the former pharmacopœia. Saccharated pepsin was very wisely dismissed by the Committee of Revision. Pepsin is employed by the veterinarian in treating gastric disturbances of dogs and the younger domesticated animals. A great variety of wines, elixirs, essences and solutions of this ferment have been placed on the market, each manufacturer claiming his article to be especially meritorious. In this connection let us remember that pepsin is only active in an acid solution and is destroyed by an alkali. The presence of 25 per cent. or more of alcohol renders it worthless and when

heated in acidulated solution to 212° F. it loses its powers. Pancreatine and pepsin in solution are incompatible. If the solution is alkaline, the pancreatine destroys the pepsin, if acid, the pepsin destroys the pancreatine. Pepsin is usually and very properly prescribed in an acid solution. Yet we should not forget that its proteolytic power is rapidly destroyed by the presence of more than $\frac{5}{10}$ of 1 per cent. of hydrochloric acid. It is incompatible with alcohol, alkalies, chloroform, ether, the salts of many metals, tannic and gallic acid. It is advisable to employ only the scale pepsin, avoiding the proprietary preparations so highly exploited by polished salesmen. Many, in fact most of the proprietaries may sacrifice efficiency for palatability and pharmaceutic elegance. The titles of the more important articles that were changed are as follows:

Acidum arsenosum	is now	official	as	arsenii trioxidum
Acidum carbolicum	"	"	"	" phenol
Acidum chromicum	"	"	"	" chromii trioxidum
Aloe barbadensis	"	"	"	" aloe
Aloe socotrina	"	"	"	" aloe
All hydrochlorates	"	"	"	" hydrochlorides
Chloral	"	"	"	" chloratum hydratum
Ext. digitalis fl.	"	"	"	" fluid extractum dig.
Resorcium	"	"	"	" resorcinol
Salol	"	"	"	" phenylis salicylas
Sodii hyposulphis	"	"	"	" sodii thiosulphas
Sodii sulphocarbolas	"	"	"	" sodii phenolsulphonas
Tinctura veratri viridis	"	"	"	" tinctura veratri
Zinci sulphocarbolas	"	"	"	" zinci phenolsulphonas

A proprietary preparation, commercially known as Antiphlogistine, has been favorably received by both human and veterinary practitioners. A similar but more excellent preparation is now official under the title of cataplasma kaolini. It is prepared by heating 577 grammes of finely powdered kaolin in a suitable vessel for one hour at a temperature of 212°F. A water bath should be employed as higher temperatures may cause darkening of this material. After having heated the kaolin for

the prescribed time, mix it intimately with 45 grammes of boric acid and then incorporate the mixture with 375 grammes of glycerine. Then add ½ gramme of thymol, previously dissolved in a mixture of 2 grammes of methyl salicylate and ½ gramme of oil of peppermint. Mix thoroughly and keep in air-tight containers. This product may be prepared with comparative ease and at considerable profit. Acetous fluid extracts are official for the first time. Those official are lobelia, sanquinaria and squills. Fluid extracts prepared with a menstruum of acetic acid are just as reliable and as permanent as those made with alcohol. Prejudice in favor of alcohol is the only thing that stands in the way of their general use. They should appeal strongly to the veterinarian as cost is greatly in their favor and nothing is lost in the way of permanence or therapeutic value. Acetic acid fluid extracts, however, should never be prescribed with the carbonates as effervescence will ensue. Should the prescriber desire to combine solution of arsenic with these fluid extracts the solution of arsenious acid should be used instead of solution of potassium arsenite. The latter will cause effervescence for reasons already stated.

Compound solution of cresol, official as liquor cresolis compositus, was made official to displace the proprietary preparation known as Pearson's creolin. It may be prepared by dissolving 80 grammes of potassium hydroxide in 50 grammes of water in a tared dish, then adding 350 grammes of linseed oil and mixing thoroughly. To this mixture add 500 grammes of cresol and stir until a clear solution is produced. Finally add sufficient water to make the final product weight 1,000 grammes. Ointments are frequently employed by veterinarians and are often prepared in a haphazard manner. Well do I remember of seeing a veterinarian mix his ointments on a wooden box that served the triple purpose of seat, shoe shining stand and ointment slab. Such indifference cannot be too strongly condemned. On account of the liability of many ointments to become rancid or decompose, they should be prepared only in such quantities as may be used within a reasonable time. Never re-

use an ointment pot or jar without first thoroughly cleaning it. Lard, a mixture of lard and wax, petrolatum and wool fat or lanoline are the bases generally used in their preparation. The best lard for pharmaceutic purposes is what is commercially known as leaf lard. This should be purified by washing and should be free from salt. The greatest disadvantage of this base is its proneness to become rancid. Heat and moisture favor the development of rancidity. To overcome this tendency the U. S. P. directs that it be heated with benzoin. But if the lard is incorporated with beeswax or resin the benzoinating process becomes unnecessary; these materials acting as preservatives, also rendering the lard more firm. This is very desirable, especially in the summer time. Many farmers treat the medicines intended for their live stock with indifference. After applying an ointment it is frequently placed on the window sill, to remain there, exposed to the sun, until it is again time to use it. Sometimes the box is deposited, lid down, and when again desired the ointment has melted and is spread on the boards. Lard, however, possesses the property of absorbing about 15 per cent. of water or aqueous liquids and is itself readily absorbed by the skin. Ointments prepared with this base, like all salves, should be kept in a cool, dry place, heat and moisture favoring decomposition. Petrolatum is the most unchangeable of ointment bases. Petrolatum of good quality should always be selected; the cheaper varieties are likely to contain some acid and are irritating. It is not absorbed as readily as lard and is well adapted for ointments where a slow, continuous action is desired. Some difficulty is experienced in incorporating fluids with this base. This may be overcome by adding yellow wax or mixing wool fat with it. Wool fat (adeps lanæ) is the purified fat of the wool of sheep. It should not contain more than 30 per cent. of water and is miscible with twice its weight of that liquid. The addition of not less than 25 per cent. of petrolatum produces a less sticky, stringy base and is manipulated with greater ease. Great caution should be exercised in the preparation of ointments intended for the eyes. Ointment

of yellow mercuric oxide is often prescribed, and as usually prepared is very gritty, thus acting as an irritant until the secretions break up the particles. This may be overcome and a perfectly smooth ointment prepared by first triturating the oxide with a small quantity of distilled water.

Where solids are to be mixed with an ointment base the better procedure is to reduce the substance to a very fine powder and mix it with a portion of the base to a uniform mixture, then adding the balance. This method insures a smooth ointment, the solid being uniformly distributed throughout the mass. When preparing an ointment of corrosive chloride of mercury I would advise dissolving it in alcohol by triturating in a mortar, then incorporating the solution with the selected base. *Ointments of solid extract.*—Use of mortar better than ointment slab. When prescribing or dispensing eye waters nothing but distilled water should be used. Always rinse the container with distilled water to remove any dust that may have found its way into the bottle. Eye waters should be perfectly free from any substance that might act mechanically. Therefore, collyria should always be filtered.

If the prescriber has ordered a salt to be dissolved in water and the salt is in excess, make a saturated solution and throw away the balance. Greater care should be exercised in the preparation of hypodermic solutions. Use sterile water and prepare them as wanted for use. Aqueous solutions, especially of alkaloidal salts, decompose rapidly and should not enter into the list of stock solutions. Never prescribe or dispense alkaloidal salts with alkalies and unless the mixture contains not less than 15 per cent. of alcohol and then the amount of alkaloid must be small. Alkalies precipitate alkaloidal salts as alkaloids and these are insoluble in water, but they are soluble in alcohol or hydroalcoholic liquids. Chloral hydrate in the presence of alcohol is decomposed, chloral alcoholate, a very irritating substance being formed. Chloral should always be dispensed in aqueous solutions. One of the best vehicles for the administration of this substance is acacia, in the form of syrup or mucilage.

Alcoholic liquids should never be combined with strong or saturated solutions of salts, as the liquids will not mix. We frequently meet with this incompatibility in diuretic mixtures. The physician will combine saturated solutions of potassium citrate or acetate with spirit of nitrous ether. When it is desirable to combine a tincture of a resin or one insoluble in water, the water should be quite cold and the tincture added to the water in a fine stream; never add the water to the tincture. By adding the tincture to the water, the precipitation takes place in minute particles and is readily reincorporated by shaking. The medical profession, and by this I mean all of the profession, has always denounced patent medicines in no uncertain terms. Medical men, it seems, have fallen into a common error with the laity by calling proprietary remedies patents and considering real patent medicines as perfectly legitimate.

A patent medicine is one for the manufacture of which a patent has been granted. Before granting the patent right the person or corporation seeking this privilege must give a very minute description of all the materials entering into the remedy, and the exact technique of its manufacture. Thus you see, after seventeen years, any one possessing the necessary ability and inclination, may prepare this same product. Not only may they make the product, but the public also falls heir to the trade name. Proprietary remedies are protected, as a rule, by our copyright laws. The composition of this class of remedies is known to the manufacturer only, and his right to both name and formula is perpetual. As a rule the proprietary preparations, used by practitioners of medicine, are sold at ridiculously high prices in order that the promoters may pay for the necessary advertising, and enrich themselves in a few short years.

We frequently find that these remedies were discovered by third rate doctors or bankrupt druggists. By using them the doctor gradually loses sight of his therapeutics and finally finds himself hopelessly entangled in the meshes of proprietaryism. The blame for the growing tendency to self medication may, in part, be traced to the practitioner's habit of employing ready

prepared, convenient, pleasing to the eye, proprietaries, or hoping to add dignity to the title ethpharmacal preparations. Compressed tablets or tablet triturates of tinctures, or fluid extracts, or of volatile drugs, are a delusion and should never be used. In conclusion, I will say that every veterinarian should do his best to write prescriptions correctly. The standing of a community or a profession depends upon the ability and character of its units. The practitioner's prescription is an index to his ability, at least such is the opinion of the laity. Having the best interests of your profession at heart, I urge you to write prescriptions carefully, correctly and neatly.

The use of paper bags, scraps of wrapping paper, etc., instead of prescription blanks should not be tolerated. It indicates carelessness and indifference and on the prescription file is a constant ad for the writer's slovenly methods. After many years of experience as a pharmacist, I can truthfully say that some of the worst and some of the best prescriptions that I have had the pleasure of filling were written by veterinary practitioners.

"DO you think the automobile will displace the horse?' asked the young woman. "It will," answered the farmer, as he gazed down the road, "if it hits him."

IN the grand floral parade of the Midwinter Fiesta in Honolulu, Hawaii, on Feb. 23, Master Marcus Monsarrat won first prize as a juvenile cowboy. The young equestrian is a son of Veterinarian W. T. Monsarrat, and will accompany his father to the meeting of the A.V.M.A., at New Haven, in August.

A STORY of affection for an animal is behind the following advertisement, which appeared in nearly all the New York dailies for a week in February last, while the advertiser, who had come on from Iowa, searched through many of the large stables of Gotham in quest of the subject of the advertisement: "FINE SORREL MARE SOLD IN IOWA; weight about 1,200; coming 5 years old; white face, left hind leg white nearly to knee, with slight wire scratch on same leg; I raised her and want to get her back; reasonable reward for information for right animal. MARE, Eagle office." The advertiser stated that his superintendent sold her during his absence to a New York dealer, and he has grieved over her loss ever since.

Indexed.

THE IMPERIAL GERMAN MEAT INSPECTION LAW: ITS APPLICATION AND EFFECTS.

THE GERMAN FOOD ANIMALS AND MEAT INSPECTION POLICY COMPARED WITH THAT OF THE UNITED STATES.

By D. Arthur Hughes, Ph. D., D.V.M., Cornell University.

The American system of inspection of food animals and meats, and the work of the Bureau of Animal Industry generally, have excited the admiration of such notables as Sir John McFadyean, the Principal of the Royal College of Veterinary Surgeons of London, and Professor Robert Ostertag of Berlin, the authority on inspection of animals and meats and editor of the *Zeitschrift für Fleisch und Milch-hygiene* — the most remarkable magazine of its kind in Europe. Sir John McFadyean is a conspicuous representative of the British people who are our largest purchasers of fresh and prepared meats; while Professor Dr. Robert Ostertag is a no less conspicuous representative of a country which has made the animals and meat trade with it difficult. The contrast between the attitudes of the two countries to the trade in this respect, is as striking as the contrast between the effects the policy of the German inspection is said to have had upon Germany, and the effects of the American system of inspection upon American interstate and foreign commerce. What then could be more enlightening to the American veterinarian than to mark the results of the apparant unwisdom in the one; and wisdom in the other?

I. THE IMPERIAL GERMAN LAW AND ITS APPLICATION.

In order to clear the way for a study of the effects of the law in Germany and a comparison of the German policy with the American policy, I shall speak of the provisions of the German law itself. The provisions that may concern us refer: 1, To the veterinarians to be chosen for the inspection; 2, the inspection districts; 3, the coöperation of revenue officers, inspectors and police for carrying out the law; 4, to what part of the trade the law is applied; 5, the main provisions referring to the

domestic trade; 6, the main provisions referring to the import trade; 7, the taxes.

1. The veterinarians to be chosen for the inspection.

There are two references in the law to the choice of inspectors. "As inspectors are to be appointed officially recognized veterinarians or other persons who have demonstrated a sufficient knowledge."*

"The Bundesrath is authorized to issue regulations determining whether persons possess sufficient knowledge to act as inspectors."†

Of a truth Germany and France are the leaders in veterinary education, in number and equipment of veterinary schools and in the magnificence with which they are supported. Twenty-two years ago the voice of Dr. Law protested that while in America there was not, at that time, a single veterinary college supported by the State or national governments, there were then in Europe no less than thirty-three State veterinary colleges. Even after the lapse of twenty-two years we can only count three or four well-organized State veterinary colleges, while the number in Europe has further increased and the intelligence they have shown in extending their influence and making their impress in the scientific work of the respective governments for the public health, for care of artillery and cavalry horses, and the treatment of flocks and herds, has been marvellous. Twenty-two years ago, according to Dr. Law's report on Education in Veterinary Medicine in Europe,‡ the learned men from these numerous State veterinary colleges, at the International Veterinary Congress of 1883, were seriously discussing the lenghtening of the professional veterinary course to five solid years, that is including the summers — indeed in some of these colleges the course was already five years, and in many four. The congress voted "for admission to veterinary

* Artic. 5. § 3. The Imperial German Meat Inspection Law, June 3, 1900. Gesetz, betreffend die Schlachtveh und Fleishbeschau, Vom. 3, June, 1900.

†Artic. 22, § 1.

‡ Annual report B.A I. 1884 Pp 341-350.

studies one must be bachelor *ès lettres* or *ès sciences*, that is to say, he must have finished his studies in the secondary education." In other words, as early as 1884 the requirement for *entrance* to these colleges was equal to our bachelor's degree in arts; while the professional training continued onward four and five years beyond that.

So to-day the German and French veterinarians, beyond cavil, are among the best representatives of veterinary learning in the world. The men chosen to take charge of food animals and meats for the German government in the capacity of "inspector or deputy inspector" are all men fitted for their work in one of the veterinary colleges supported by the State. They always have had a stiff preliminary training and a professional training under men who devoted all their time to teaching, research or only such professional practice as appertained to the hospital work of the college. The inspectors are so thoroughly trained that they are proficient in all branches of the governmental inspection — chemical examination of preserved meats to test for unlawful preservatives, microscopic inspection for communicable parasitic diseases, ante-mortem inspection and post-mortem inspection as rigorously conducted under the German law. As is characteristic of German scholarship, the training is almost fearfully minute and detailed. We have nothing in our language to compare with Ostertag's work on meat inspection which is the standard throughout Germany; nor would a magazine like the *Zeitschrift für Fleisch und Milchhygiene*, which flourishes in Germany, perhaps be able at present to exist here. It is true, much of the inspection in Germany is done by "stock inspectors," which correspondent to "stock examiners" in the American service, whose duty is to detect and set aside unwholesome meats, without necessarily knowing to what the unwholesomeness is due, and thus save time for the regular inspector. But this saving of the time and expense for additional inspectors can hardly be avoided in any country; and no harm can come as long as all matters are referred to the veterinarian in charge.

2. *The inspection districts.*

"In order to accomplish the inspections," says the law, "inspection districts shall be established; for each of such districts shall be appointed at least one inspector and one deputy inspector."* The federated governmental authorities are to form the districts and appoint the inspectors.

It must be remembered that no quarter is exercised in Germany in the matter of supervision of the home and foreign meat trade. The whole of the home output as well as the foreign importations are alike subject to inspection. Germany, it must also not be forgotten, has not that power of the central authorities over the commerce between the States as is true of the federal government in America. Germany is a confederation and many of the States in the confederation have State rights peculiar to them and undisputed by Prussia.† Hence the appointive power of the individual States. The inspection of home products is therefore largely in the hands of the State authorities. However, the foreign importations are inspected under the supervision of the customs office. For this purpose, Germany, comparatively small a country as it is, is divided by law into no less than two hundred and fifty (250) foreign meat inspection offices scattered everywhere along the customs lines of her borders, and the seaboard, and within the country. There is therefore no possibility of animals or meats escaping the customs officers or the rigorous inspection.

3. *The coöperation of revenue officers, meat inspectors and police for carrying out the law.*

For the carrying out of the law the revenue officers, meat inspectors and police, work hand in hand. Any one who knows the number of police there are, the power they have in a martial nation like Germany, the espionage they exercise in all details assigned to them as part of their prerogative and the strictness with which they carry out the letter of the law, will understand

* Art. 5. § 1, 2.

† I refer here to the Zollverein or agreement between these States and Prussia, at the time of the formation of the confederation.

that its provisions are certainly carried out. When animals are turned aside as unsatisfactory to the inspectors, or when meats (carcasses or their parts, or prepared meats) are not up to the standard, the police immediately have them in charge, which is a guarantee in Germany that they will be satisfactorily disposed of. In the import trade animals and meats are first and last in charge of the revenue officers stationed along all customs lines and guarding entrance. The inspection stations are either at or near the customs offices; the inspection officers working with the revenue officers and each accountable to the other. Should the imported animals or meats be satisfactory, the revenue officers have them under seal for collectible duties; if not, they must be carried out of Germany by the agent of the importer under customs escort.

4. *To what part of the trade the law is applied.*

German meat and animals inspection, without any exception whatsoever, is extended to all animals and meats intended for food throughout every part of Germany and to all animals, fresh carcasses, their parts or prepared meats, desired by outsiders to be imported. The words of the law referring to the domestic trade are: "Neat cattle, swine, sheep, goats, horses, dogs, the meat of which is intended to be used as food for man, shall be subjected to an official inspection both before and after slaughter. By decision of the Federal Council (Bundesrath) the obligatory inspection may be extended to other food animals."* With regard to the import trade the words of the law refer specifically to both prepared and fresh meats. The prohibition of most preserved meats is definite and cannot be gotten around. "The importation past the customs line of meat in hermetically sealed cans, or in other similar vessels, of sausages and other mixtures made from chopped meats is prohibited."† The supervision of fresh carcasses or parts is strict. "Fresh meat may be imported past the customs line only in entire carcasses, but the carcasses of neat cattle (with the exception of calves) and of

* The Imperial Law, Art. 1, § 1.

† Art 12, § 1.

swine may be cut into halves. The pleura and peritoneum, lungs, heart, kidneys, and, in case of cows, the udder also, must be attached to the carcass in natural connection."*

Prepared meats, for the most part, therefore, are absolutely prohibited from entrance. Though frozen meat is included under fresh meat by a later proclamation, the difficulty of importation of fresh meat from across the seas in entire carcasses, with the parts named attached, can hardly be overcome. The Bundesrath in a further proclamation requires the neck, trachea, larynx and head to be attached in natural position. The blood of each animal is considered as a "part" under later regulations. The blood of each animal, without being salted, must accompany the carcass. All in all the restrictions are such that importation of fresh meats from beyond the seas is made almost impossible.†

5. The main provisions referring to the domestic trade.

The provisions for inspection of animals and meats in the domestic trade are as elaborate as German scientific erudition can make them; each regulation is definitely detailed; and each detail is fortified by penalties which will require its being carried out with certitude. The main points refer to ante-mortem inspection; the ordinary post-mortem inspection; the special post-mortem inspection of horses, asses, hinnies, mules and dogs; the chemical inspection or prohibitions; the trichinæ examinations.

An ante-mortem inspection must be made of all animals except those which may die from disease or injury before the post-mortem examination occurs; but the latter in no case can be put into traffic as fresh meat. If an animal is not killed within twenty-four hours after ante-mortem it must be reinspected before death. The post-mortem rules are more stringent. If an animal is found only partly fit for food it must be sterilized, not sold as fresh meat, and can only be sold at all by persons with a special license and in rooms with placards stating that

* Art. 12, § 1, 2.

† Proclamation of the Bundesrath, June 24, 1903.

this class of meat is there for sale. If an animal or carcass is condemned outright it passes into the hands of the police for destruction, usually by burning. Though we cannot here go into the minutæ of the law, we may say that every detail of the law on these two inspections is guarded by major and minor penalties. There is a penalty of 1,500 marks (about 350 dollars) for a person who knowingly acts in contravention of the law, traffics in forbidden meat or fraudulently affixes or alters the government marks.* While there is a minor penalty of 150 marks (about 35 dollars) for numerous small offences.

Solipeds and canines require a special inspection. After inspection they must be marked in German as such, sold under special license, the dealer must sell the flesh in a separate room, and place signs on the meat designating whether it is horse, mule or dog. For violations of these rules there are particularly heavy penalties.† In addition there are also special articles in the law touching the industrial preparation of any meats for traffic. "No materials or kinds of processes shall be used which are capable of imparting to the wares a condition injurious to health." The Bundesrath is to determine how far this rule is "applicable to special materials and kinds of processes which are apt to conceal an unwholesome or inferior quality of the wares." ‡ The result of which has been that an imposing chemical examination of preserved meats has been set up in Germany. Not only this, the imperial German law has special provisions for inspection of pork for trichinæ, but this inspection is left to the will of the separate States.§

6. The main provisions referring to the import trade.

The provisions referring to the entrance of meats or carcasses into Germany, the prohibitions and restrictions, are elaborately detailed in two proclamations of the imperial senate and published by the chancellor as special supplements to the regular documents of the Imperial Health Office. ‖ They are called

* Art. 1, 2, 6, 7, 8, 10, 11, 26.
† Art. 18, § 1 to 5. ‡ Art. 21, § 1, 3. § Art. 24, § 1.
‖ Veröffentlichungen des Kaiserlichen Gesundheitsamt.

the Meat Inspection Customs Ordinance of February 3, 1903, and "concerning the marking of inspected foreign meat" of February 10, 1903.

Of those things which are prohibited from importation into Germany we have already spoken of hermetically sealed meats and carcasses which are not entire and with the organs like the heart, lungs, etc., attached as required by law, so we need to note but two other provisions. First meats preserved with boracic acid, formaldehyde, alkali and alkaline earth hydroxides and carbonates, sulphurous acid and its salts, hyposulphites, hydrofluoric acid and its salts, salicylic acid and its compounds, chlorates, are all prohibited from importation. Second, with the exception of hams, bacons and casings (cleaned and salted intestines), all pickled or salted meats of less than 8.8 lbs. weight are forbidden from entrance. As frozen or fresh meats not in entire carcasses, hermetically sealed meats, preserved meats and pickled meats are forbidden, this is tantamount to a blockade against foreign trade. *

For all animals and meats brought to the German borders there have been laid down a mass of specific administrative provisions binding the customs officers, meat inspectors and police, in a code of regulations which cover the surveillance of animals or animal products from the moment they approach the frontier to the time they are finally allowed to pass into the German traffic. The goods are received by the customs house, then turned over to the inspection office under customs seal or espionage. The inspector is put under oath for customs returns; while customs officers and inspectors keep check on one another's work in tedious detail. Even the complete minutæ of the bookkeeping are provided for in the ordinance.

At the same time no mistake can be made, even by the most erring intellect, as to the customs fees, inspection fees, the disposition of condemned or refused meats by the police or customs officers.†

* Meat Inspection Customs Ordinance, Art. 1, § 1 to 6.

† Meat Inspection Customs Ordinance. Art. 2 to 28.

7. The taxes or fees.

The imperial German meat inspection law, and the proclamations based upon it, have specific regulations on fees to be charged for inspections and other costs. These are chargeable both on all animals and meats produced in Germany, as well as all imported meats and meat products.

In the domestic trade the fees take the form of meat inspection expense charges, license fees required from vendors of second class meats sterilized by the inspectors, from dealers in soliped and canine meats, from dealers in meats which have been regularly passed. The chemical and trichinæ inspections are all paid for by special fees. Besides, the police department is not backward in securing major and minor penalty fees from breakers of the meat inspection law in the course of the inspection, or when the inspected meats pass into the trade.*

But when we consider the charges for inspection of imported meats and meat products, this part of the subject becomes more interesting to us. These were announced in a proclamation of the Imperial Senate March 4, 1903, and made effective at once.†

The fees include the customs charges, the meat inspection charges, and the compensations for taking and sending samples, reports, entering on inspection books, making out certificates, marking the meat, travel of experts.

The ordinary fees cover: first, fresh meat; second, dressed meat. For fresh meat: cattle per head, 59.5 cents; calf, per head, 17.8 cents; hog, per head, 17.8 cents; sheep or goat, per head, 14.2 cents; soliped, per head, 71.4 cents. For dressed meat: intestines per 2.2 lbs., 24 cents; bacon per 2.2 lbs., 47 cents; other dressed meat per 2.2 lbs., 9.5 cents. The fees at least, for intestines, must be 9.5 cents; for other dressed meat at least 11.9 cents. In case of appeal from a test, when the whole

* The meat inspection law, Art. 26-28. Art. 24-18, 21.

† The ordinance concerning fees for the inspection of meats imported past the customs line, Hamburg, March 4, 1903.

consignment must be examined, or in dissimilar consignments, the dressed beef fees are doubled. For the preparation of whole carcasses or fresh meats for inspection—cutting, hanging, laying out parts—an additional charge of 20 per cent. of the named fees is provided.

The special fees cover trichinæ and chemical inspection. For trichinæ inspection: entire hog, 23.8 cents. The common fee for detection of forbidden preservatives is 59.5 cents a consignment.* To show the rigor of the law we may say. First, 1,000 tubs of lard of 25 lbs. each would require for taking samples, examination for preservatives, examination for purity and sealing, about $17.85. Second, 100 pieces of pork shoulders, each 6.6 lbs., would cost for general inspection, examination for preservatives and trichinæ, $15.11. Third, 100 pork bellies, weighing net 992 lbs., would take for general inspection, chemical and trichinæ inspection, $16.91.†

High as these inspection charges may be thought to be by some, to them must be added the German tariff duties. Under the new German tariff law of 1902, which went into effect March 1, 1906, the following are the rates for cattle, horses and hogs. If there is not settled a reduction by special treaty the rates are: cattle, $4.28 a head; horses, $21.42-85.68 a head; hogs, $4.28 a head. If agreement by treaty is obtained: cattle, $1.90 a head; horses $7.14-28.56 a head; swine, $2.14 a head.‡ According to associated press despatches of February 23, 1906, America has been given the reduced tariff rates until June 30, 1907.

II. THE ALLEGED EFFECTS OF THE IMPERIAL MEAT INSPECTION LAW IN GERMANY.

After several years of discussion and agitation the law passed, and received the imperial signature June 3, 1900. The

* Consular Reports No. 1424 Aug. 21, 102. Pp. 4-5. Meat Inspection fees ordinance. March 4, 1903. Art. 1 to 6.

† Consular Reports No. 1435. September 4, 1902. P. 4.

‡ Consular Reports No. 2252. May 8, 1995. P. 9.

part prohibiting meat in hermetically sealed cans went into effect October 1, 1902; the code of regulations became effective April 1, 1903. The whole law, including the meat inspections customs ordinance, and the ordinance concerning meat inspections fees, has, therefore, been operative about three years.*

During the last few years, under the new law, certain economic changes are alleged to have taken place in Germany. First, it is said, there has been a decline of the import trade, both from beyond the frontiers, and from beyond the seas; second, that prices of food stuffs have risen; third, that there has been some dissatisfaction with the law; fourth, that the poor have resorted to cheaper material for food.

1. Decline of the import trade.

Consul General Mason, of Berlin,† has supplied us with information on the decline of the import trade in fresh and cured meats into Germany since 1900. For the first three months of 1902 the receipts of fresh meats were 5,776 tons; January to March, 1903, 3,250 tons. The decline was noticed, particularly in fresh and salted pork and upon preserved meats: fresh pork and hams, tons, 19,120 to tons 4,905; slightly salted pork, tons 6,865 to tons 2,338; hams, cured, tons 2,522 to tons 975; bacon, cured, tons, 9,839 to tons 2,469; sausages, tons 105 to tons 82. The first figure, in each case, is the import for 1902; the second figure, for 1903. When it is remembered that the United States largely controlled this trade, we can see the effect on American commerce.

The prevailing opinion seems to be that, in order to increase the importation, the frontiers should be opened to a free passage of animals and fresh meats. A national mass meeting of 2,000 representative butchers and meat venders was held in Berlin in the summer of 1905. The gist of its declaration was: "German agriculture has repeatedly demonstrated that, in spite of

* Consular Reports, No. 1303, March 31, 1902. P. 1.
No. 1410, August 5, 1902. P. 1.
No. 1394, July 17, 1902. P. 1.

† Daily Consular Reports, No. 2246, May 1, 1905. Pp. 9-10.

contrary assertions, it is not capable of supplying Germany sufficiently with animals for butchering. The rules and regulations now existing with reference to the importation of such animals, through quarantine measures, have such a paralyzing effect that these rules and regulations are almost equivalent to a prohibition of imports." The resolutions close with a most urgent appeal for opening of the frontier to the free importation of cattle and swine, with only such veterinary regulations as will give real protection to German flocks and herds from contamination, and preserve the public health.*

2. *Rise of the prices of food stuffs.*

We may see the rapid rise of prices between 1904 and 1905 on each hundredweight (110 lbs.) of the live animal by comparing the following two sets of figures, the first of which represents the price in 1904; the second that of 1905. †

Animal.	1904.	1905.
Calves	$15.47 to $19.04	$16.66 to $21.42
Cattle	14.28 to 15.47	17.85 to 20.23
Hogs.	13.00 to 14.28	15.47 to 16.66
Sheep	14.28 to 15.47	17.85 to 20.47

The retail prices are correspondingly increased. Fresh pork now sells by leading meat dealers in Berlin for 24 cents a lb., beef steaks at 35½ cents a lb., veal for 35 cents a lb., and mutton for 28½ cents a lb. These are prices entirely beyond the reach of working people. The dealers say that the prices are due to the limited supply of animals and to cost to them, due to the meat inspection law.‡ The International Association of Hotel Owners of Berlin, in a petition to the Government for relief from the meat inspection law, says that geese cost 24

* Daily Consular and Trade Reports, No. 2381, Oct. 9, 1905. P. 3-4.
No. 2318. July 26, 1905. P. 4.

† Daily Cons. and Trade Reports, No. 2388, Oct. 17, 1905. P. 10

‡ Daily Cons. and Trade Reports, No. 2381, Oct. 9, 1905. P. 2.

cents and chickens 7 cents more than last year (1904)—due to the general rise of prices resulting from scarcity of food products.*

What is true of Berlin is true of the other cities of Germany, prices have been rising rapidly. In Baden the increase in price for the best class of beef is 1⅕ cents for 2.20 lbs.; for second class beef 1⅛ cents for 2.20 lbs.; for veal 1⅛ cents for 2.20 lbs.; for mutton 1 cent for each 2.20 lbs.; for pork 2⅓ cents each 220 lbs. Trier and Breslau pay 43 cents for 2.20 lbs. of pork; Coblentz and Neuss 45 cents; Hanau 47 cents; and Aachen 50 cents.†

The capital reflects the general condition in Germany, and in Berlin, during the last five years, the prices paid for beef and pork far exceeded the average paid in the surrounding capitals except St. Petersburg.

3. The alleged dissatisfaction with the law.

During the last twelve months there has been apparently some dissatisfaction at what is supposed to have been the effect of the law. In the autumn of 1903 the national (German) association of hotel and restaurant keepers met, and addressed to the imperial chancellor a protest against the law in which they asserted that meats are rapidly becoming more scarce in Germany.‡ The magistracy of Upper Silesia recite to the imperial ministry the conditions in that part of Germany and make a similar appeal. Brunswick demanded the removal of the duty on cattle and hogs. While similar demands it appears have been sent in to the ministry by Munich and Leipzig. In Northern Schleswig twenty-nine communities protested against the scarcity of meat. The public, in mass meeting, or the city councils of Dortmund, Darmstadt, Nürnberg, Stuttgart and Cologne have it is said done the same thing. The import city of Hamburg has followed her sister cities and the capital, Ber-

* Daily Cons. and Trade Reports, No. 2388, Oct. 17, 1905. P. 12.

† Daily Cons. and Trade Reports, No. 2397. Oct. 27, 1905. P. 3.

‡ Daily Consular and Trade Reports, No. 2381, October 9, 1905. P. 2.

lin, charging the scarcity of meat to the meat inspection law.*

4. The poor obtain cheaper food.

Since horse meat retails in Berlin at 8 to 10 cents a pound, as compared with beef which retails at present at 35½ cents a pound, the poor have, during the last few years, resorted largely to its use in that city. Consequently, up to 1905, the sales of horse flesh in the city enormously increased. In 1895 the number of horses consumed was 7,267; in 1900 10,815; in 1904 13,000. The last figure represents 3,990,000 lbs. of horse flesh eaten in Berlin in 1904. The proportion of horse flesh used in Breslau in 1904 was greater than in Berlin. In Southern Germany the consumption of horse flesh is still greater with a constant increase.†

Unfortunately even the price of horse flesh is rising rapidly. This being so, and as dog flesh is no longer obtainable, numbers of municipalities it is reported, buy carloads of fish at the seaport towns and sell them at cost to the citizens. This has been done in Solingen, in towns in Westphalia, Posen and Bavaria.‡

III. THE OBJECTIONS TO THE IMPERIAL GERMAN MEAT INSPECTION LAW.

At the heart of the alleged failure of Germany to supply sufficient animal food for the populace at reasonable prices is the fact that Germany is one of the European countries which, for hundreds of years, has been compelled to import, and will in the future be compelled so to do. She is one of the overcrowded nations of Europe which must import foreign flesh foods because of the scarcity of her home supplies. Russia in Europe has only 24,000,000 head of cattle and 35,000,000 sheep for her 90,000,000 people. Neither Germany nor France have as many animals though both have as many people. Germany and France, like Great Britain and Ireland, which have only 11,000-

* Daily Consular and Trade Reports, No. 2388, Oct. 17, 1903. P. 10-11. No. 2335, Aug. 15, 1905. P. 5.

† Daily Consular Reports No. 2246, May 1, 1905. Pp. 10-11.

‡ Daily Consular Reports, No. 2388, Oct. 17, 1905. P. 12.

000 cattle, 6,000,000 hogs and 34,000,000 sheep for 40,000,000 people, must each import flesh foods.

The United States, Argentina, Australia and Canada are the four countries which have the surplus of animals for the teeming millions of people of the European continent. The two factors of success in the trade are distance and amount of live stock. The United States is nearest to Europe, while she has 60,000,000 head of cattle, 62,000,000 hogs, 46,000,000 sheep for her 83,000,000 people.

Australia is farthest from Europe. Argentine is far distant with 27,000,000 cattle and 110,000,000 sheep for her 6,000,000 people. Yankee celerity should carry us soonest to Europe with our surplus.*

As Germany cannot supply her own demands she must look beyond the frontiers or over the seas for supplies. But the meat obtainable from the surrounding countries is not sufficient in quantity to meet her needs; nor have those countries sufficient quantities to meet their own demands. Germany has therefore in the past been a large importer from the United States. Very large as the trade of America is with Germany it is not nearly as large as the needs of the country indicate; besides, during the last few years, it has been declining. Our imports to Germany of meat, meat products and dairy products, was second only in size to our trade with Great Britain. Witness the difference though between 1,221,900 lbs.—our importation to Germany, and 35,398,244 lbs.—our importation to Great Britain.†

IV. THE GERMAN FOOD ANIMALS AND MEAT INSPECTION POLICY COMPARED WITH THAT OF THE UNITED STATES.

Nothing could be more striking than the contrast between the United States and Germany in the origin, application and effects of their food animals and meat inspection law.

* See Daily Cons. and Trade Reports, No. 2397, Oct. 27, 1905, Pp. 3-4.

† 21st Annual Report B. A. I. 1904. P. 489.

In agricultural productiveness the contrast between the two countries is striking. Germany is forced to import to keep even within reasonable bounds of the demand for meats. The United States production of animals and meats is enormously in excess of American needs. There must be an outlet for this excess in farm production. The American animals and meat inspection was developed for the furtherance of two things: the interstate and foreign trade.

How was this done? In the main, as follows. The endeavor has been, first of all, to prevent disease among animals coming into this country. For this purpose there is an inspection at foreign ports, by inspectors of the Bureau of Animal Industry, of all animals to be sent here; further, there is a quarantine on the American seaboard of animals coming into our country. The endeavor has been, secondly, to prevent diseases among live animals being carried from one part of the country to another, or from this country abroad. This is done by the inspection by the Bureau of Animal Industry, at our seaboard, of all live animals for export; and by the quarantines, within the country, against our animal plagues. Thirdly, the endeavor has been the prevention of disease among dead animals (carcasses or their parts), being hurtful to consumers at home or abroad. This has been done by the meat inspection service of the Bureau of Animal Industry, which has an oversight of all meats which are to pass into the interstate or foreign trade. The animals and meats inspection service of this most important Bureau of the Department of Agriculture, now covers the ante-mortem inspection of animals, and the post-mortem inspection of carcasses at 151 establishments in 51 cities, or the bulk of live animals, carcasses or parts in the interstate or foreign trade. Of cattle, sheep, calves and hogs, there were inspected ante-mortem 64,613,383; of cattle, sheep, calves and hogs there were inspected, post-mortem, 39,500,370, all during the fiscal year closing 1904. Of these 89,175 whole carcasses, and 132,602 parts of carcasses, were condemned and tanked.*

* 21st Annual Report. B. A. I., 1904. P. 12.

We have in mind in this work the forestallment of the difficulty of having our meats or animals challenged as hurtful to man or animals, in order that our domestic and foreign trade should be stimulated to its highest activity. We wished to find a sale for our millions of tons of meats and meat products and our countless number of animals with the government assurance that neither, because of disease, would be hurtful to man or beast. Our success in this matter is borne out in the British trade. At no time have our meats, which passed American inspection, been found to be unwholesome in Great Britain. Our live animals are not challenged; nor our canned goods; nor our frozen (fresh) meats.

The contrast between the German and American food animals and meat inspection laws is brought out strongly when we consider the cost of the inspections to the respective countries. In Germany every step in the inspection is marked by fees, which, heavy enough as they are for the German owners, are heavier to the importer. There are fees for ordinary inspection, for chemical inspection and for trichinæ inspection. In America practically no inspection fees are charged, though recently it has been decided to charge the owners for labels and stamps placed on passed meats or receptacles containing them. For the many millions of stamps and labels used it is estimated that the total cost will be only seventy thousand dollars a year. There is no charge for the quarantine at seaports, for ante-mortem or post-mortem inspection at official stations, for the animals quarantines in the country at large, for trichinæ or chemical work, for the work of stamping or labelling or sealing cars. All of this is paid for by appropriations from Congress and when the money appropriated is divided up it is found to amount to the insignificant sum of a particle of a cent for each inspection.*

The contrast is also great between the dissatisfaction and unpopularity which the German law is alleged to have caused in

* See the official reports of the B. A. I., in which this statement is verified.

Germany and the satisfaction and popularity of the American law in America. The unpopularity of the German law in Germany is apparently based: first, on the fact that it shuts out importation of canned goods and sausages and there is little output of these products in that country; secondly, it greatly decreases the imports of fresh meats and limits the supply. The satisfaction and popularity of the American law in America is shown: first in the demand for increase of inspection privileges and the extension of the inspection to all abattoirs; second, in the warm support the work of the Bureau of Animal Industry has always had from the veterinary and agricultural press throughout the land; third, in the pride shared by the people and its scientific leaders and expressed always in warm praise of the efforts of the Bureau of Animal Industry in behalf of the public health and commercial success.

The American food animals and meat inspection system, as it has been developed during the last fifteen years, that is since 1891, is true to the American idea of how any great system, industrial or governmental, should be developed. Germany platted out a law perfect in every detail, as far as law making goes, and put all parts into operation, in 1903, fire-new from the law maker's minds, and many parts evidently novel and untried before. On the contrary the American system was built up gradually in keeping with the scientific and commercial needs of the country. There is practical good sense in the development of a system such as that over which the Bureau of Animal Industry is administrator, the various parts evolved as experience with questions of public or animal health warranted or as commercial conditions or needs demanded. The American food animals and meat inspection regulations, developed on authority resting in the fundamental law of 1884, which founded the Bureau of Animal Industry, and that of 1891, which set into operation the meat inspection service, have been a success. The German food animals and meat inspection law of 1900, if we can judge by conditions said to prevail in Germany, has, so far, in some respects, apparently been a failure.

EVERY-DAY EXPERIENCES.

By E. H. SHEPARD, V. S., Cleveland, Ohio.

Read at Meeting of Ohio State Veterinary Medical Association, January, 1906.

I come before you to day with only a few thoughts on the practical side of our every-day work, with a note or two on cases that some of us see only perhaps once in a life-time. There is no one so bright, no one with such a long and extended practice, who cannot meet nearly every week with something new, some condition to him unknown, some phenomenon whose cause and effect differs from any he has yet seen or read of as recorded.

Just stop for a moment and think, that among the millions of people who inhabit this earth, there are no two alike, either in looks, thought or deed; no two the same. And as I look back over my records of cases treated, take the disease pneumonia, for an instance; of all I have treated in an active practice of nearly 18 years, there are no two alike, no two whose pulse, temperature or lung affection, whose strength, appetite, and nervous symptoms, *or any one* condition the same. Take the common misfortune, nail prick; there are never two alike, as to size, depth, location, parts injured, nervous conditions, lameness, length of time of recovery, or death.

Here are two interesting samples which came under my observation: One picked up a small nail on the road, the puncture being near the point of the frog; the horse became so lame it could hardly walk; a horseshoer removed the nail, thinned the surrounding horn, poured in some of his "dope" (a sure cure) and sent the man and his beast on his way, the man congratulating himself that the accident occurred near a shoeing shop and was treated at no expense; but the horse growing lamer at each step, becoming more excited at each rod, could soon go no further, and dropped to the ground in the road. He was rolled onto the grass in the ditch and I was ordered to come and see what was best to do. You can well imagine my surprise when after hearing the above related circumstances,

and reaching my patient, I found him just dying, in what I could only term as "tetanic convulsions"; every muscle seemed tense to its very utmost, the jaws set as in the worst case or tetanus, the limbs stiff and rigid, each muscle feeling like wood, with head and tail elevated and as tense as the rest of the body.

Post-mortem revealed a badly fractured os pedis and all surrounding parts terribly congested.

The second case occurred in a heavy work horse, who gathered in a No. 20 spike; it entered about the centre of the frog, passed upward directly posterior to the navicular bone and flexor perforans tendon to about the lower third of the os suffraginus, where it broke through to the outside, and when I raised the foot both extremities of the spike were exposed. Upon application of a forcep to withdraw it the animal struggled, with the result that it was torn out directly to the rear, leaving a large, gaping, bleeding wound. Treatment was given, this being at about 11 o'clock A. M. The next morning the horse being *not lame*, he was put into the harness and hitched to his usual load of stone, weighing from four to five tons, and never missed a day or a load, the wound healing very rapidly.

Now, while these two cases—one of them especially—did not admit of treatment, the other making its quick recovery, are only odd and interesting, I have mentioned them to illustrate one point in particular, and that is the great difference in the nervous organism of different animals, and, because of that fact, we as practitioners should never neglect to consult the nervous economy of the animal in hand. Many an appearing hopeless case may be turned towards recovery by steadying that balance wheel of the animal economy.

In a lively, hurried practice we are liable to become heedless and careless, and ofttimes as we look back over the treatment given some case which did not turn out to our satisfaction, we think of many common sense things which could have done no harm, and quite probably might have aided to a much better result. There are many things about our every-day work which

are exceedingly easy to some of us, and aggravatingly hard to others. The things which are hard for us to do we do as little as possible.

Just now, for one instance, how many graduated veterinary surgeons I have seen who could not examine a horse's mouth to even their half satisfaction.

Whenever you put a speculum in a horse's mouth, even one of the most approved pattern, he will fight it to a greater or lesser extent, and it is always in the way of the hand and arm, and especially so if instruments are used.

The art of examining the mouth by the eye, even when a strong light is used, is far, *far* from satisfactory. The only way to my mind to thoroughly examine the mouth and its contents is by the hand, with, so to speak, an eye in the end of each finger; and, further, you can only examine thoroughly one side of the mouth with the one hand and the other hand should be just as skillful in the other side of the mouth.

I find trouble in the mouth of different kinds too numerous to mention. Decayed teeth, broken teeth, snags, foreign bodies (as needles, pins, pieces of wire, cobs, roots, pieces of wood, and abscesses, cuts, tears, etc.) are the principal things found. Never yet but twice have I found a mouth that I could not search carefully and thoroughly and be able to state the exact condition of such a mouth. In my practice I have only found two horses that would not allow me to examine and put my hand in their mouths. One of them tried to shake hands with me, and missing my hand tore open my vest from top to bottom. To him I said "you are welcome," and if the mouth must be searched I will lay you down before again attempting it.

The older members here will remember that years ago I brought to this our annual meeting the skull of a mare containing a seventh molar, which had opened a way through the basilar process of the superior maxillary, making an opening into the throat and doing much damage. For years I have been looking for seventh molars in a live horse, and this last fall I found two, one on either side of the lower jaw, and ex-

tending upward, just enough to begin to cause trouble. I operated on them, cutting off the exposed points, and smoothing the stubs down nicely with the float.

There are many ways of examining the mouth with the hand and I differ from the majority, but will demonstrate my way in the clinic if called upon. And there is not one of us who cannot easily learn to do a simple thing in the right way. In the dressing of teeth, which to some of us is almost an every-day occurrence, I do not believe any man can do a first-class job, so to speak, unless he works always with one hand in the mouth. That one hand is his guide ; it carries the working parts of his instrument right where the work is needed and tells you instantly when you have done enough and when your work is finished. The other hand going into the mouth on the other side does likewise, thereby resting each hand or arm in turn. And your dressing of each side is done straight in the line of the teeth and there is no awkward cross work to be done, neither do you dress one side more than the other, because both sides are easy and alike to do, and again, not one-half of the veterinary dentists have their files placed in their floats in the, to my mind, proper manner. I do not believe any work upon the teeth should be done with the *push stroke*. It can be done just as well with the *draw stroke*, and with a hundred times less danger of frightening or, what is worse, injuring the animal. Now in this connection, as I am talking of the manipulation of the horse's mouth, I wish to give you an example of a case which came to my office several years ago.

As I was standing in the door of my infirmary talking to a friend one day, I saw a man driving a team towards me, and I remarked to my friend, "Here comes a man with a sick horse." The off one could scarcely walk ; its head hung low and its every effort showed exhaustion. As he stopped before me he asked in a gruff voice, "Is the Doctor here?" to which I answered, "Right here." "Well," said he, "there is a sick mare and I have driven her all the way from Kirtland (which was over 20 miles); she has been ailing nearly two weeks. Two

doctors with their papers have seen her, and all the quacks in my country have tried to save her; but she can't eat, and if she isn't cured soon I'll never *git* her home again." My eyes had been busy, and I said, "Does she *try to eat?*" "My, yes!" he answered, "but she can't swallow anything but water and thin gruel."

I unbuckled one cheek piece to the bit and slipped the bit from her mouth, raised the head and slipped one hand back into her mouth—clear back between the upper sixth molars. I found something, and slipping a finger around it gave a quick pull and brought out a crooked gnarled piece of wild cherry root, resembling the letter Y, and that was all; but which, the mare or the man, was more pleased, no one could say. The grass I gave the mare she swallowed before it was half masticated and kept begging for more; the man danced and laughed and pounded me on the shoulder till I began to think he meant something. He told me she had been treated for sore throat and he did not know what all, while the outside of her throat was blistered. So, you can see that the ability to examine the mouth is a help at all times, and the more dexterous and smooth you are the better impression you give, and your success is correspondingly greater.

Now, as I remarked before, new things will continually come to us, and many times they are a decided help in more ways than one. I wish to cite you a case which I treated the past fall, as it has a distinct feature to it which was a surprise to me. I was called one morning to come in haste, and found a fine looking mare sweating, trembling and breathing hard. I inquired into the history of the case, and found she had been coughing a little for some days, but eating well and feeling good, and, as the day was Friday, and the owner wished to make a long drive on Saturday, he had called in a friend to advise him whether it was best and safe to drive her. The friend said he thought so, but he could give her a dose which would make her all right; so the owner told him to go ahead. He told the owner to get him a full pint of lamp oil, which he

poured into a long-neck bottle, and getting up on the manger, threw her halter strap over a beam, pulled up her head and poured it down her, never wasting a drop, as he expressed it. I gave a laugh and said: "Did you give this mare a pint of lamp oil?" "Yes," said he, "and he gave it to her through the nose." "Well," said I, "he has killed your mare; she will die. A part of it, at least, has gone down her wind pipe into her lungs, and you now have a good case of mechanical bronchitis." I took her pulse and temperature. Found the pulse 72, and temperature 104. This at 11 o'clock, A. M. I gave immediately raw linseed oil, and a mild stimulant, and left more to be given. I returned at 2 P. M., and the pulse registered 84; the temperature, to my surprise, was so high that I took it three times to be sure that I made no mistake; each time it stood at $109\frac{2}{5}°$; at 5 P. M., the pulse was 106, and the temperature $108\frac{2}{5}°$. At 8 P. M. the pulse had dropped to 84, but the temperature still stood at $108\frac{2}{5}°$.

The next morning the pulse had dropped still lower and was 72, the temperature $105\frac{2}{5}$ and so on for the next eleven days, her pulse fluctuating; at no time lower than 52, while her temperature varied also, never lower than 103° nor higher than 105°. The bronchial conditions continued with considerable pneumonia, and she wasted and lost flesh, going on steadily towards the inevitable end, death, which occurred on the twelfth day. This was the highest temperature I have ever taken and I quote it simply for that fact, and also to show you how smart some of our Cleveland quacks are.

Cases *will* come to us whose condition and symptoms are such as we have never been taught, read or recorded, or seen before, nor even dreamed of. There may be cases that might be caused or brought about in several different ways, or perhaps no man can give a reasonable cause for. But we get them just the same. Again, we get cases which, search and examine as we may, quizz and cross-examine the owner and driver, and rack our throbbing brains as we will, we *cannot* name the trouble and here with these mystifying cases is where each one of us can add

to or take away from our reputations. Each one of us may be good as veterinary surgeons, and each one have his specialty, yet there is some part of our work that each one can do better and with more success than he can do the rest.

I predict that in a few years in all large cities we will have specialists in the different parts of the work. The good work has already begun and specialists in the one branch of lameness are quite common. But that man to make a success must have not only theoretical but practical ideas on the mechanism of the foot in all its parts, as well as a thorough knowledge of all the muscles which make up the locomotory apparatus of the horse.

In dentistry, you all know the specialists are innumerable, and the majority are nothing more nor less than "fakirs," especially the "traveling gentry."

We will have the abdominal specialists and the respiratory specialists, and in some places, not in the cities, there will probably be obstetrical specialists, for good men in that line are hard to find.

The men who make surgery a specialty will also have a place. But when that time comes no one will be able to confine himself *entirely* to his specialty. There will be room and work for all, and I believe as the years roll by and our people become more and more educated up to the value of the veterinary surgeon, in like ratio will his calling rise in their estimation and his life work will be a financial success.

"I FIND THE REVIEW a source of great profit in my work, besides being of much interest and pleasure." — *(John Oliver, V.S., Columbus, Miss.)*

IN the ten years' existence of the State Board of Veterinary Examiners of Pennsylvania, it has issued 180 licenses to practice veterinary medicine and surgery in that State. Under the old registration law, when any one who had ever seen a horse was allowed to register, 1,975 names were recorded. Under the new law, compelling a registration with the Examiners, about 800 will be the result. In a review of the reregistration, Dr. Hoskins, the secretary, gives some interesting figures, which we hope to publish in the near future.

PATHOLOGY AND TREATMENT OF FEVER.

By Prof. W. A. Stuhr, Ames, Iowa.

Presented to the Annual Meeting of the Iowa Veterinary Association, at Ames, January, 1906.

In no branch of the science of medicine, perhaps, can there be observed more notable changes than have taken place in therapeutics in the last few years.

In fever, for example, the most important phases of the treatment are almost diametrically opposed to those of but a few years hence. The successful physician has come to a full realization of the powers of nature and recognizes in her his greatest aid in his fight against disease.

This has stimulated many careful and painstaking investigations of all phases of disease and as a result the many serums, vaccines, and toxins have been discovered and brought to light.

These products include almost all of the specifics known to therapeutics to-day, and all are produced as a result of the body's own activity.

The thought is therefore very strongly impressed that the body itself is the origin of the real antidotes and that it behooves us to study its methods.

It has only been of recent years that the therapeutist has realized, that in order to logically select his means of relief, he must be thoroughly familiar with the needs of the system. That is, he must understand the changes of structure and of function which take place in the diseased body, as well as the protective mechanisms of the body, which have been developed during the course of its evolution.

Thus, if the body naturally endeavors to protect itself against the ravages of disease by increasing its number of leucocytes, whose purpose it is to destroy, or, by their secretory activity, to manufacture a substance which will neutralize the products of the invading germs; or by elaborating an antitoxin through its own cellular activity; or by increasing the functions of the elimination, etc., it should be the purpose of the therapeutist to

resort to all justifiable means of increasing the number of leucocytes; to employ, if possible, a specific antitoxin, or to aid in the functions of elimination in every consistent manner.

This transference of the practice of therapeutics from an unreliable to a logically sound basis has succeeded in elevating it from the level of an empiricism to the dignity of an applied science.

Let us therefore apply the idea just expressed to the subject of fever and ascertain, if possible, the reason for the present form of treatment.

Fever may be described as representing that pathologic state characterized by such phenomena as elevation of temperature, and altered metabolism, associated with increased activity of the circulatory and respiratory systems, and functional and structural changes in the tissue of the body.

Although the high temperature, or pyrexia, is a prominent symptom of fever, it is by no means always present.

Thus, in some forms of septicæmia, all the other symptoms of fever may be present, while there is no elevation of temperature.

Indeed it is believed that the bacteria, or their products, are responsible for the tissue changes and that the pyrexia may be only in certain instances.

The causes of fever have been grouped as traumatic and infectious. Although traumatic fever is not at all uncommon, by far the greater number of cases of fever are due to specific causes.

We have, therefore, to deal with the effects produced by living organisms and their products.

Pyrexia is regarded as being the result of toxic disturbances of the nerve centres concerned in heat regulation, the degree of elevation of temperature depending upon the affinity of the toxic product for the heat centres.

Since the toxic products are elaborated by bacteria, it may be considered that the elevation of temperature is an index of the intensity of the infection.

Therefore, since the temperature in most instances varies

directly with the intensity of the infection, most authorities contend that the febrile reaction is of a defensive nature and is to be looked upon with favor.

From a bacteriological standpoint, this seems to be true. For instance, most pathogenic bacteria grow best at the temperature of the body, or 37°C. In fever, the temperature may rise to 40°C., or higher, at which point the activities of some bacteria are much inhibited. The high temperature does not lead to serious results unless excessive or prolonged.

The altered bodily functions are dependent upon disturbance of metabolism.

The accelerated pulse in fever, however, as Brunton and Liebermeister have proven, is due to the action of heat upon the heart.

It has been experimentally demonstrated that their injection of bacterial products will cause a marked loss of body weight, which may be progressive and lead to death.

Tissue changes produced by bacteria include almost all those known to pathology. They may, however, be grouped under two headings, namely: those of a degenerative or necrotic character and which are the direct result of damage, and those of a reactive or defensive character.

The former depend upon the virulence of the organisms and their ability to establish themselves in the tissue. These are the cause of the symptoms of disease.

The latter represent the defensive resources which have been developed by the body.

The structures most concerned in the protection of the body are the leucocytes and the fixed cells of the tissues.

It is a well-known fact that, in the various bacterial diseases, certain changes occur in the organs and tissues which are due to the action of bacterial products in circulation in the blood. This is observed in the degenerative changes in the cord and peripheral nerves following the injection of the products of the diphtheria bacillus.

Cloudy swelling, fatty degeneration and coagulation necrosis

are the lesions commonly presented. These degenerative changes, in such important organs as the liver, heart, kidneys, muscles, etc., interfere with their functions, and not unfrequently are the direct cause of death.

Hence the great importance of increasing the power of resistance of the body, and thus inhibiting the production of bacterial toxins.

Since we believe in the parasitic theory of disease, we cannot assume that recovery has entirely taken place until all of the organisms which cause the disease have been destroyed or otherwise gotten rid of.

That numerous bacteria are eliminated from the body in the various secretions and excretions can be seen from the fact that these, in many instances, are highly infectious and are capable of spreading the disease to other animals.

This, however, does not account for the complete disappearance of the organisms in those instances where recovery takes place.

Some other protective resource is chiefly responsible.

If, for example, germs are introduced into the tissues, setting up a local infection, there is called forth a reaction, characterized by a series of interesting phenomena which we designate inflammation.

If such an area were examined under the microscope, it would be seen that the most important and the most apparent of these phenomena would be the vast accumulation of leucocytes. What is true of such local infections is likewise true of acute general infection.

Thus the entire field of acute infectious diseases has been studied and, as a result, the statement is made that, with only few exceptions, in every case there is a leucocytosis, the extent of which varies with the severity of the infection.

An interesting classification of diseases derived from a study of the leucocytes reveals the fact that those diseases which manifest an initial leukopenia which is maintained throughout their duration almost invariably run an asthenic and fatal course. On

the other hand those diseases which show a marked increase in leucocytes are characterized by more favorable termination.

We are informed by good authority that cases of pneumonia in which leucocytosis is absent, or but slightly marked, are invariably fatal.

It appears, therefore, that leucocytosis is a decidedly favorable symptom and that the leucocytes are intimately concerned in the protection of the body.

Admitting this to be true, it remains to explain how they accomplish such favorable results.

The exhaustive experiments of the celebrated Metschnikoff have done much to explain the phenomenon. To sum up the results reported, we may say that the leucocytes, which accumulate in the area of infection, undergo a process of disintegration by which they liberate a substance that is disseminated throughout the body and which has the power, not only to neutralize the bacterial products, but also to attenuate the bacteria themselves, so that they may be taken up and destroyed by the leucocytes. This being true, it is reasonable to suppose that the greater the number of leucocytes present, the more powerful will be the resistance of the body.

In addition to the protection offered by the leucocytes, against the bacteria themselves, the body is further protected against the products of bacterial growth by the organs of elimination, such as the kidneys, skin, bowels, etc., which excrete the poisons and thus by preventing accumulation, often overcome fatal poisoning.

Further the tissues themselves, as Ehrlich has so aptly explained, in response to the action of the toxins, elaborate substances which react with the toxins producing non-toxic combinations. These procuded of cellular activity are the so-called antitoxins.

Artificial leucocytosis may be either physiologic or therapeutic. Physiologic leucocytosis follows digestion of foods rich in proteids, exercise, massage, cold, etc. Of these, cold properly used and frequent feeding of small amounts of proteids, are the

most practical in veterinary practice. Cold, in addition to increasing the number of leucocytes, exerts a most favorable antipyretic influence without any of the depressing effects of the majority of the ordinary fever remedies. It acts as a general tonic and stimulant and by its abstraction of heat serves to relieve nervous and circulatory excitement.

Further, the introduction of cold water into the system either by ingestion or in the form of enemas will, by its diuretic effect, maintain the action of the kidneys and assist very materially in the elimination of the effete products of metabolism and of bacterial growth, which are responsible for the depression manifested.

Cold as an antipyretic is employed, practically, in form of enemas, cold drinks, or sponging of the surface of the body conjoined with brisk rubbing with coarse cloths. As for the first method several gallons of cold water may be introduced high up in the posterior bowel and allowed to remain until the temperature drops to within about two degrees of normal. This procedure should be repeated whenever the temperature shows a tendency to rise. A bucket containing cold water should always be placed conveniently about, as a drink of this kind is always helpful.

Cold may be applied externally in the form of sponge baths. Cold applied by means of coarse cloths or dashed on and followed by brisk rubbing until dry. This latter is absolutely necessary in treatment of fever. The patient should then be covered with a blanket.

This may be repeated at frequent intervals to get the effect of stimulation or as often as the temperature begins to rise, to control pyrexia.

Therapeutic leucocytosis.—Numerous medicinal agents have the power of increasing the number of leucocytes.

Among the most important may be mentioned nuclein, nucleinic acid, peptone, pepsin, camphor, etc., administered subcutaneously or intravenously. Tonics, stomachics, notably gentian, also increase the number of leucocytes.

Certain gland extracts, as of the spleen, thymus and bone marrow exert a marked effect. Nuclein especially seems to be a reliable agent and numerous reports from the medical profession indicate that it is not only absolutely safe, but has been used successfully for several years.

Blood counts show that it will double the number of leucocytes in a short time and some reports show an average increase of 75 per cent. in the number.

Being an albumin, nuclein is digested by the gastric juice and therefore must be given intravenously or subcutaneously. In conclusion, therefore, since experimental and practical observations have all shown without question that hyperleucocytosis is a decidedly favorable symptom in those diseases characterized by increase in the number of leucocytes, it seems that we should aid nature in her struggle against disease by artificially increasing the number of leucocytes in every justifiable manner.

The more familiar we become with the manifestations of disease, the farther we drift from the old practice of therapeutics, which indeed is largely empirical.

Thus many of the antipyretic remedies which have been so extensively employed in the past are being dropped from use because they are too depressant.

In fact they produce, in some instances, change in the tissues similar to those resulting from the bacterial poisons themselves.

This is notably true of those organic and inorganic compounds which interfere with the ozonizing power of hæmoglobin and of which the coal tar derivatives, such as acetanilid and its class, are examples.

I trust that this brief review of the subject of fever will serve to illustrate the dependency of therapeutics upon pathology and also to stimulate a closer study of the workings of the body in disease in order that we may be prepared to deal with it more rationally.

HAVE you written to your Senators and Congressmen, in behalf of the Army Veterinary Bill? Do it now.

DISINFECTION.

Indexed.

By Prof. R. R. Dykstra, Ames, Iowa.

Presented to the Annual Meeting of the Iowa Veterinary Association, at Ames, January, 1906.

My object in presenting this paper to you this evening is not for the purpose of announcing any new or startling discoveries, but more to bring back to your minds afresh the thoughts which were instilled in them during our college days, and if I can accomplish this purpose, I will feel more than amply repaid for my efforts in this matter.

Before proceeding with my paper, allow me to offer a definition of a disinfectant, of an antiseptic and of a deodorant, terms which are often confused.

Disinfectants or germicides are agents which destroy the microörganisms causing infectious and contagious diseases, fermentation and putrefaction.

Antiseptics are agents which prevent the growth and development of microörganisms, occasioning fermentation, putrefaction and disease; more especially the micrococci producing suppuration.

Deodorizers or deodorants are agents which destroy or counteract a foul odor. They are not necessarily antiseptics or disinfectants.

Considerable confusion exists in relation to the terms disinfectant and antiseptic, because the latter is often described as an agent which inhibits the growth or destroys the life of the microörganisms of fermentation, putrefaction and disease. This definition makes antiseptic synonymous with disinfectant. The distinction exists, however, according to common usage, that while disinfectants may, in dilution, act as antiseptics, antiseptics are not often disinfectants, and in the nature of things are not strong enough to kill germs, although they may hinder their growth. Antiseptics may then be regarded as a subdivision of disinfectants. The two terms are unnecessary and misleading, as either might embrace both interference with the

growth and destruction of microörganisms. Disinfection may fall short of sterilization; *i. e.*, death of all germs.

Boiling a fluid containing microörganisms wholly destroys them; but while disinfectants may destroy the germs of disease, they often fail to kill more resistant and harmless organisms, as the *Bacillus subtilis*. The scope of antisepsis has been extended by some authors to include agents which destroy the toxic products of bacteria and prevent their absorption.

A discrimination between disinfectants and antiseptics may be made in relation to their connections with the body. Those agents employed to kill germs, in matter distinct from the living body, are disinfectants, while those agents applied on the surface, or introduced within the body, may be classed as antiseptics, since they can rarely be used in such strength as to kill all microörganisms without injuring or killing their host.

Let us pass from these definitions to the knowledge which a disinfector should possess.

The success of the disinfector lies in personal attention to the minutest details. He must know the best method of disinfecting or purifying rooms, barns, sheds, pens, cars, or any place where many animals are assembled and where latent or unrecognized cases are constantly suspected or are actually occurring to contaminate the surroundings. Germs are little things and it is the little things that count in this kind of work. The disinfector who is satisfied to leave the process in the hands of an inexperienced person, with a few words of instruction, cannot expect to obtain trustworthy results. In no other work is the watchword that "vigilence is the price of success" truer. The disinfector must give personal surveillance to the whole process, the materials, the strength of solutions, modes of application, and must be present to guide and direct every step of the operation with the same conscientiousness and thoroughness with which the surgeon assures himself of every detail of asepsis in his operating room.

It is true that the means and methods employed to rid a stall of infection closely resemble those used in the operating room,

but it stands to reason that in the former case they can rarely be carried out with the same exactness and certainty as in the latter, where everything is arranged and constructed with this end in view. In the surgical clinic nothing short of sterilization is safe, while in the great majority of disinfection done to prevent the spread of epizoötic diseases, measures that fall far short of sterilization will suffice.

A great deal may be learned by a thorough inspection. To be sure we cannot see the germs with our unaided vision, but we can see the dirt and moisture and other conditions that present a favorable medium for the growth and multiplication of the pathogenic microörganisms. While the old idea that filth and unsanitary conditions *breed* disease, is wrong, it is nevertheless true that these conditions keep the infectious principles alive and favor their propagation. It is therefore plainly the duty of the disinfector not only to destroy the actual infection, but also to eradicate all the conditions that would act as breeding places and disseminators of infection.

The disinfection of barns, sheds, pens, cars, ships, and all objects that have been exposed to infection, must of necessity be greatly in excess of the actual requirements. This is one of the difficulties met with in attacking an invisible foe. A barn might readily be disinfected and rendered safe by applying a few gills of one of the germicidal solutions to a small spot or limited area; but as we cannot see the germs, it is necessary to apply our disinfecting agents to every inch of surface of the barn and all its contents, in order not to miss that particular infected spot. As our knowledge of infection becomes more exact, our processes of disinfection become more precise. At first disinfection was directed by a shot gun process, in a general sort of blunderbuss way, against everything, but now that we know the habits and habitat of each one of the particular microörganisms, we can concentrate our efforts with more exactness upon the particular object of media liable to infection, with every assurance of eradicating the danger.

In other words, it is quite as important to know what to dis-

infect as how to disinfect, and a very thorough knowledge of the subject of the causes and modes of transmission of the communicable diseases is the most useful weapon the disinfector has in his fight against the spread of infection.

It has been laid down by Parkes that, in order to apply the process in disinfection in a scientific manner, we should know, 1st, the nature of the contagion or disease-producing agent; 2d, the means by which this is spread; 3d, the effect produced on it by the action of the disinfectant used for its destruction.

In the present light of our knowledge we must regard the contagia as consisting of particles of living matter; this will hold good whether the disease in question be glanders or scabies. It is unnecessary here to enter into the subject of disease germs, and the arguments in favor of or against their specific power. They are undoubted and exist in all diseases capable of producing their like by inoculation, and though the poisons of rabies and some other diseases have not yet actually been seen, it must be held that they are as undoubted as the poisons of anthrax or tuberculosis.

The means by which disease poisons are spread, are through direct contact with the diseased fluids of sick animals; by water or food, soiled by their body fluid; by air containing particles given off from their skins and lungs, or carried up by the process of evaporation from the infected ground on which they stand; by contact between healthy animals and men who have been attending on the affected ones; by the sale and conveyance about the country of hides, horns, flesh, offal, bones, tallow, excrement, etc., of affected animals; by the superficial burial of carcasses and the bringing to the surface, through animal agency, of the particulate poisons of the dead; and through placing healthy animals in sheds, stables, railway cars, wagons, ships, etc., which have been occupied by diseased ones. Such are the principal modes by which specific diseases are conveyed, of which we have had many practical examples in the country, the cattle plague being the most notorious.

The sanitary measures which have, therefore, to be enforced

to prevent the spread of disease are obvious. The public declaration of the infected area; the drawing of a sanitary cordon around it for a distance, which must be governed by the infectious nature of the poison; the absolute cessation of communication between the infected area and the outside world, and the immediate destruction of affected animals, are the first measures to place in force. The difficulties of a thorough carrying out of these principles may be readily appreciated; they can only be enforced by a veterinary sanitary police powerfully supported by the law.

The foregoing measures can, if properly applied, be absolutely certain of limiting the disease to the infected area. In this we have enormous advantages over the human hygienist, who is allowed much less control over public liberty, and moreover cannot carry out that golden principle of limiting the spread of a contagious disease by the immediate destruction of the diseased patient.

The stress of modern activities demands disinfecting processes that are instantaneous in their action, all-pervading in their effect, cheap, harmless and free from any unpleasant odors, though the latter is not an essential. Such perfect disinfectants are not known. It requires time, money and the expenditure of well-directed and intelligent energy to accomplish satisfactory disinfection.

GENERAL USE OF DISINFECTANTS.

Air, sunlight, heat and water are naturally the best disinfectants. Air scatters and dilutes microörganisms, making them pathologically inactive. There is no more effective way to disinfect a stable, in which animals are living, than by free ventilation with pure air. It is well known that animals are less liable to contract infectious diseases in the comparatively pure air of the country than in the closely crowded and ill ventilated city buildings. Likewise the contagious diseases of children mostly occur in winter, when they are herded together in schools and in poorly ventilated dwellings. To attempt to disinfect the air surrounding a patient is the height of absurdity. The gen-

eration of chlorine and sulphurous acid gases for this purpose, although recommended in some text-books, is futile, and by irritating the respiratory mucous membrane, accomplishes more harm than good, since a congested surface offers a more suitable field for bacterial growth. Air, on the other hand, may be a medium of infection when contaminated with dust containing pathogenic bacteria. Sunlight is prejudicial to the vitality of bacteria, whereas, the bacterium of tuberculosis will live almost indefinitely in damp, dark places, but quickly succumb to sunlight and dry air. Sunlight and pure air are, then, imperative for both the immediate and preventive treatment of germ diseases. Heat is the most powerful agency for disinfection at our command. Dry heat, to be efficacious, must be applied at a temperature of 284° F. for three hours to kill all bacteria and spores; but this degree of heat scorches most fabrics and destroys many materials. Boiling water quickly kills all non-spore bearing pathogenic bacteria, and these include most of the organisms causing the common contagious and infectious diseases (tuberculosis and anthrax excepted). Two hours of continuous boiling will not destroy the most resistant of microörganisms—the spores of the hay bacillus—but moist or saturated steam, at 230° F. will infallibly kill any spores whatsoever within a few minutes.

Fire is the most complete disinfectant, because it not only destroys germs, but their food and products. Water, like air, dilutes germs and aids oxidation and destruction of organic matter; but again, like air, drinking water may be the source of infection when sufficiently contaminated.

The disinfection of a stable requires a very thorough application of all the resources at the hand of the disinfector. The conditions met with in a stable render the disinfection doubly hard, not only on account of the accumulation of organic filth, which has worked into the many crevices and saturated the woodwork, but on account of the high resistance of the anthrax and tetanus spores, for which stables are sometimes disinfected. In addition to these diseases, stables require disinfection on ac-

count of tuberculosis, glanders and pleuro-pneumonia, and various diseases of man, as well as those of domestic animals. It is advisable to give the stable a preliminary fumigation, preferably with sulphur, in order to destroy surface infection and the vermin which always infect these places. The preliminary disinfection is especially important in the case of plague, glanders, tuberculosis, or any of the exanthematous diseases, not only to prevent the spread of infection, but as a safeguard for the disinfection. Then remove all small articles that need disinfection. The blankets should be wrapped in moist bichloride sheets and boiled, steamed or burned. Buckets, currycombs, brushes, stall tools and other equipment that has been in contact with sick animals or with infectious materials, should be mechanically cleaned with hot carbolic solutions in which they may be allowed to soak over night. Metallic or wooden objects or utensils should be given a thorough preliminary cleansing with a stiff brush and hot water and soap and then boiled or immersed in a hot 5° solution of carbolic acid or a 2° solution of trikresol for several hours. Leather articles, as harness or equipment, should receive a similar preliminary cleansing and be scrubbed with either a strong solution of bichlorid of mercury or carbolic acid. All hay and grain should be removed from the racks and mangers, and all bedding from the floors. After its careful collection at some designated point the refuse should be saturated with petroleum and destroyed by fire.

The stable must now be soaked with a strong antiseptic solution applied with a hose, or splashed on all surfaces by means of mops. The floors, corners and stalls must be saturated with the solution. On account of the presence of so much albuminous matter—phenol or one of its derivatives is preferred for this purpose to sublimate solutions. Now scrape out the debris from all cracks in the floors and walls; collect it for burning, then clean the woodwork with hot lye or a strong alkaline soap solution, and follow with another general hosing with the antiseptic liquid.

After several days exposure to air and sunshine the interior

of the stable should receive a fresh coat of whitewash, applied thickly, and prepared from lime, freshly burned shortly before the time of use.

The watering troughs are very apt to be infected, especially in dealing with glanders. In all instances, not only the troughs and watering buckets should be disinfected, but the water remaining in them, for often there is no drain or sewer, and this water poured on the ground may be a source of subsequent infection. The water may first be disinfected by the addition of a suitable amount of any of the ordinary soluble germicides. The troughs are then to be mechanically cleaned, thoroughly removing all organic matter, and then applying a strong germicidal solution to both the inside and the outside. For metal lined troughs the use of bichlorid of mercury is, of course, inapplicable, and for such carbolic acid, trikresol, formalin or potassium permanganate is recommended. Most antiseptics are poisonous and must, therefore, be finally washed out of the trough or buckets by flushing with fresh water and then airing in the sunlight before they are again used. Strong carbolic solution or formalin should be poured down all pipes or drains.

Sometimes the ground in the immediate vicinity of the stable will need some attention; lime will generally be found most useful for this purpose. Carcasses and excreta are to be disinfected and disposed of according to the nature of the disease with which they are affected and this we will now consider.

We know that with most of the specific diseases, special parts are affected from which the poison is discharged from the system; thus the diarrhœa of cattle plague, the nasal discharge in glanders and influenza, the desquamation in variola, the subcutaneous serum in anthrax, the saliva in foot-and-mouth disease, the ærial particles in pleuro-pneumonia and tuberculosis, etc., are all means by which the water, air, food, soil and buildings are infected, and capable of reproducing the disease unless disinfected.

It is clear that the discharges from the body should be de-

stroyed by fire, the fæces and litter burned, the soil on which the patient has stood disinfected by litter being burned on it, and the ground to the depth of six or twelve inches dug up and buried with the carcass.

It is evident that the extent to which disinfection has to be carried must depend upon the character of the disease we are trying to eradicate. Glanders and cattle plague would certainly require to be dealt with on the above lines, but when we come to such diseases as influenza, or scabies, our methods of disinfection may undergo modification to the extent considered necessary by the peculiar nature of the disease.

Our measures would not be complete unless the persons in attendance on the sick animals are disinfected. Their clothing should be boiled or baked, preferably the latter, and their bodies thoroughly washed, particularly the hands, which should be perfectly disinfected; attention should be paid to the nails of these persons; they should be cut short and thoroughly cleaned.

The disinfection of hides, flesh, horns, hoofs, bones, tallow, etc., is recommended, because when we are dealing with diseases where these may convey the poison, nothing less than entire destruction by fire or chemical processes should be carried out. The flesh is an important economic consideration, but we cannot conceive that the flesh of diseased animals can be fit for human consumption.

During the progress of an epizoötic, dogs or other small animals should be prevented entering the infected area, and if found should be destroyed.

SURGICAL ANTISEPSIS AND ASEPSIS.

It may be fitting, and not out of place to briefly outline here the rise of antisepsis and asepsis in veterinary surgery. Since the days when Lister introduced antisepsis, surgery has advanced in a manner which appears, however, like retrogression. It is now conceded that asepsis can be attained more satisfactorily and safely without the general use of antiseptics, for antiseptics, as has been noted, inflict a certain amount of damage upon the

denuded surface, and, in so far, lessen the resistance of the body to the inroads of bacteria. Modern surgery attempts to secure a comparative asepsis by mechanical cleanliness, which is more efficient, simpler, and harmless to the body. Antiseptics are indicated to assist asepsis in the toilet of the unbroken skin, and when sepsis has already occurred or is unavoidable. The gross neglect of aseptic precautions, often seen in the operations of veterinary surgery, would be considered criminal practice in human surgery.

Asepsis is nevertheless very difficult to secure in the lower animals living among filthy suroundings and lying on fæcal discharges. In addition to these disadvantages, the trouble of controlling animal movements during operation, and of keeping dressings in place, make the attainment of asepsis embarrassing and frequently impossible. The more common administration of anæsthetics would facilitate asepsis by preventing movements of the patient and contact of the operative field with dirt.

But there are all degrees of infection, and while, with the best methods of securing cleanliness at our command, it is impossible to completely sterilize normal skin and tissues, yet the surgical result may be perfect. Therefore, in surgical operations, we should endeavor to secure as small an amount of infection or dosage of microörganisms as possible, consistent with existing environment and conditions.

The following aseptic technique is especially applicable in the case of any surgical operation undertaken upon a non-infected part. If it is possible to carry out all the details and the result is successful, healing should take place without suppuration.

Operations upon suppurating and infected areas should be conducted with cleanliness, and antiseptics are more desirable, particularly H_2O_2 and corrosive sublimate 1–1000.

To prepare the surface of the body for operations, the hair is first clipped and shaved, the skin is thoroughly scrubbed with a brush, green soap and water for five minutes and then with cor-

rosive sublimate 1-1000. After the skin is incised, there is no further necessity for antiseptics, unless the wound is already infected, or becomes so by exposure to air, or contact with dirt. The hands of the operator, including the finger nails, should be brushed until clean with green soap and water and then with Hy Cl_2 1–1000 solution. Instruments are thoroughly scrubbed with soap and H_2O and boiled for ten minutes in an aqueous solution of sodium bicarbonate (1 teaspoonful to one quart) and then placed in a 20 per cent. solution of boric acid, or removed to a sterile towel.

Pledgets of sterile cotton or gauze only should be used to soak up the blood in order to clear the field of operation.

If irrigation is desirable, normal salt solution, 1 heaping teaspoonful to the quart of sterile water, is appropriate. Nothing else but this is allowable within the non-infected abdominal cavity. Sutures of silk and needles are prepared by boiling in water for 30 minutes. The area about the operative field is to be surrounded with cloths or towels, which have been boiled or baked, and the instruments may be laid on these.

Dressings may consist of gauze which has been exposed for three hours to dry heat at 140° C. or 2840° F., or placed in an oven of an ordinary cooking stove, in closed tin cans, until it becomes scorched and slightly brown. The same gauze may be used for sponges. Unsterilized articles are not to be suffered to come in contact with the operation.

Wound infection from exposure to the air and other media is prevented by immediate dressing and bandaging or by collodion application.

THE PENNSYLVANIA STATE V. M. ASSOCIATION will hereafter have a three-day meeting, with one full day devoted to a surgical clinic. This Association fought hard against the introduction of clinics as a part of its programme, but the great interest and value which they have for the membership forced them in, and the REVIEW predicts for this organization fuller attendance and a larger enrollment of the qualified members of the State.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

A BROKEN CATHETER—A PIECE REMAINS—HORSE WORKS.

By E. C. THURSTON, D. V. S., Sydney, N. Y.

The following report is presented on account of its being somewhat out of the ordinary cases met with.

The patient, a bay draft gelding, was brought to my infirmary during my temporary absence from the city, his ailment being a simple colic. A teamster (one of the kind who knows it all) happened to be present and gave his diagnosis as "water-colic," saying that if he had one of those tubes (meaning a catheter) he would soon relieve him. Finding a catheter in the office, and without either softening or oiling the instrument, he proceeded to catheterize the animal, the consequence being that by forcing it, the catheter buckled on itself; there was a slight flow of urine, tinged with blood, after which the clever gentleman commenced to withdraw the catheter, it stuck; so, in order to release it, he gave a sharp pull, breaking off about four inches, which remained in the animal's body.

When I arrived, about half an hour after, the patient was standing and straining from the irritation. On examination, I could feel about two inches of the broken portion of the catheter extending backwards over the brim of the pubis. After carefully manipulating at intervals for upwards of six hours, I was unable to trace the remainder. I then decided that the only plan was to make an incision in the perineal region and remove the obstruction. This was done with the hope that the innermost portion might be grasped with forceps or that the spiral wire in the catheter would assist in withdrawing it. Such, however, was not the case, as the removal of the portion grasped in the forceps brought only the wire, the linen portion remaining. Realizing the impossibility of removing the latter, the incision was sutured and the patient catheterized. This occurred some four months ago. The animal has worked every day since, remains in good health, except that occasionally the penis will hang pendulus. At such times, micturition is intermittent and more or less difficult.

Will any REVIEW reader favor me with any suggestion or description of any other mode of operation which might have

been more successful. Though the patient does his work, and does not seem to suffer to any extent, I cannot but feel that perhaps something further might have been done.

FREAKS OF WIRE—FRACTURE OF INFERIOR MAXILLA—INDIGESTION—ERGOTISM. *

By Dr. R. C. Hill, West Alexandria, Ohio.

I have here a few cases to report—not that they were difficult cases, or took an extra amount of skill; but peculiar in a way, as all three cases originated from the same cause, afflicted different parts, and misleading at first sight as to their diagnosis.

Fracture of the Inferior Maxilla.—The horse was driven to hospital with a running sore on inferior maxilla. Opened it up, could apparently feel bone; gave an injection to be used once a day. I met the owner several months later, and he said place was still running. I insisted that he drive him in so I could give him a more thorough examination, which he did. I opened wound so as to admit finger and found supposed loose piece of bone. Took a small pair of forceps to remove it and, to my surprise, pulled out a wire that was five inches long.

Indigestion.—Owner stated his cow was "off her feed," and "lost her cud," and I gave him some medicine such as a cathartic and stomachics. He came in next day and said cow was no better and wanted me to come and see her. I found cow standing; did not care to move. On examining condition of stomach found out she could move, as she handed me one of those "good mornings" peculiar to the cow. After farther examination, found very sore spot in left flank, on the order of a small abscess. Opened it and found wire about eight inches long, that had penetrated stomach.

Ergotism.—I was called to the country to see steer with supposed broken leg; owner stated he had been lame for a week or ten days and was getting worse every day, and that he could feel the bone. On arrival patient was down. We got him on his feet, and, to my surprise (while I had never seen a case), thought I had a typical case of ergotism (such as is shown in the Government book on cattle). After inquiring if he had been feeding rye, said he had not; so I had to make farther examination. I cleaned parts nicely and could apparently feel the bone in front of leg and at the sides and also at back part. So I began to look for the severed tendons, but could not find any. After a little farther manipulation I found a rough place,

*Read at Meeting Ohio State V. M. A., January, 1906.

and the cause was apparent. Took a small pair of forceps, untwisted the wire and removed it, which laid fully three quarters of an inch in from outside of leg. The patient being relieved at once, the owner, greatly surprised, but still very much bored that he had not been able to discover the wire a week ago before leg had swollen. The steer made a nice recovery.

ACCIDENTAL SURGERY.*

By WALTER SHAW, V. S., Dayton, Ohio.

Since I became a member of this Association, I remember of but one or two cases of accidental surgery being reported. One of those was the accidental removal of the uterus of a cow in which the result was disastrous. Judging from this, it would seem that accidents in surgery are of very rare occurrence, or are considered of little or no importance to veterinary surgery. Still it seems to me that if all accidents were reported and carefully studied, it would be of benefit to some of us.

The case I wish to direct your attention to is one of accidental cystotomy. Some months ago I had an opportunity to witness a veterinary surgeon perform laparotomy on a female puppy several months old. The animal had been left at the doctor's office thirty-six hours before, and had been put in a stall two feet square. It was given plenty of water but nothing to eat, and left there to become in condition for the operation.

Thirty minutes before the patient was put on the operating table, it was given hypodermically three-eighths of a grain of morphine. After the field had been prepared for the operation, the surgeon carefully made an incision through the skin and abdominal muscles. He then took up the peritoneum with a pair of forceps, but the bladder being greatly distended, had extended into the abdominal cavity, and was taken up with the peritoneum, and with the first stroke of the scalpel, to the surgeon's surprise, he had performed cystotomy. The urine escaped freely through the incision. The operator did not lose his nerve, but held to the forceps and elevated the viscus in such a way as to allow the urine to escape outside of the abdominal cavity. When the bladder was emptied, the incision was closed with cat-gut sutures; the edges were turned in, and the sutures inserted through the external coats only, the peritoneum from either side being brought together in apposition.

The abdominal operation was then completed, and the incision was closed in the usual way. As it would have been a dif-

* Presented to Ohio State V. M. A., January 1906.

ficult matter repeatedly to pass a catheter, and as the doctor did not have a suitable one at hand, it was considered best to put the patient back in the small stall without food or water for twenty-four hours. This was done to lessen the secretion of urine. At this juncture the patient had shown no constitutional nor local disturbance, and had urinated twice. She was then given two tablespoonfuls of warm milk night and morning for the next three days. The milk was then increased to three ounces twice a day for four days. When she was discharged, the abdominal wound was healed, and the animal was in good condition.

DENTIGEROUS CYST.

By W. S. De Hay, D. V. S., Mt Pleasant, S. C.

In making a report on surgery, it has been the custom to relate some of the more recent operations, but as the majority of the members of the profession are subscribers to some of the veterinary journals, I will not discuss matters already familiar, but will present a case that I regard peculiar as well as interesting.

A black horse, nine years old, was brought to me January 10, 1906, for treatment of a fistulous opening at the antero-external part of the base of the right ear. This condition had existed for five years. The animal had been treated by several quacks, who had tried to "eat out the pipe" until the horse was of a sensitive disposition. He had changed owners several times because the trouble appeared incurable.

I cast the patient and removed a lot of dried exudate, and inserted a probe into the fistulous opening, which was on a level and one inch in front of the inferior point of the aperture of the concha. The tract passed downward toward the squamosal bone. The probe came in contact with a hard substance, which could be detected by manipulation. An incision was made two inches in length, beginning at the fistulous opening, toward the eye. Upon inserting the finger what seemed to be the crown of a huge molar tooth could be made out.

By inserting the molar extractors I removed the tooth with difculty, it being necessary to get assistance until it was loosened.

It approached cuboidal in form, and measured on an average of 2¼ inches in each direction.* It weighed three ounces.

I treated the case afterwards as I would an ordinary wound, and got an uneventful recovery.

*To confirm this statement, Dr. De Hay forwarded the tooth to the Review office, and it is now in our possession.

ARMY VETERINARY DEPARTMENT.

THE BRITISH AND AMERICAN ARMY VETERINARIAN.

Dr. Edmund Burke, Assistant Principal of the Bengal Veterinary College, Calcutta, India, paid a pleasant visit to the office of the REVIEW on March 21. Dr. Burke was on his way home, having been taking a post-graduate course at the Grand Rapids Veterinary College during the winter. He has been on a year's leave of absence, and expects to arrive in Calcutta about May 3. The Doctor is a native of England, and is a brother of Veterinarian Burke, of the British Army Veterinary Department, retired. He has lived in India for twenty-four years, and has been in his present position for over twelve years. He gave an interesting account of educational matters in India, and his recital brought to our mind the irony of justice to the veterinary profession, for while the British Government maintains five veterinary colleges in the Indian country, it has held aloof from its home schools with inexplicable consistency, save in the instance of the recently endowed Dublin College, although we have been told that Camden Town has or is soon to receive a sop from the hand that does so much for schools in far-away India. In the Bengal College there are 150 students, while Lahore has larger classes—all free. Most of the graduates go into the service of the Government, but they are free to follow their inclinations, and may enter private practice, if they prefer. Although five schools are turning out graduates in goodly numbers yearly, and, notwithstanding that the great majority enter the Government service, the demand for veterinarians by the Crown exceeds the supply. We recite these facts not in criticism, but in contrast to the absolute disregard of our own War Department for the needs of the military arm of the government in a veterinary service which will attract men of education and character, rather than causing those brave men who entered the service for the avowed purpose of improving it, to hang their heads in shame in the presence of *military veterinary of-*

ficers of high rank in the armies of all civilized countries in the world. However, our service is young, and it is only in the past few years that any considerable number of men of the best type have joined the veterinary branch, and from all we hear they are making a deep impression as to their worth upon the military authorities, and their reward is certain to arrive in the shape of recognition and grade, which will cause a blush of pride instead of shame when they meet their veterinary *confrères* of the armies of other lands. England has a splendid and honorable veterinary department in her army, but it did not come in a day, nor a year, nor a decade, but it was meted out slowly and in little lifts until the beginning of the reign of King Edward, when the reorganization placed it upon its present high and satisfactory basis. Our own President Roosevelt, with his fine sense of justice, and his oft-quoted slogan of "a square deal," having an intimate personal knowledge of the needs of the military service, would not permit this condition of affairs to exist if it was brought forcibly to his notice; but in the multiplicity of the demands upon his time, and most of them of vital importance to the welfare of the nation, he has not the opportunity to give this subject sufficient attention to see the opera bouffe that is being played in the army. Indeed, the parties responsible for this condition are the military authorities, not the executive; but, when these blind men cannot be made to see, the keener eye of a higher authority should be turned in that direction. What friend of the veterinarian will call President Roosevelt's interest into operation in behalf of this important branch of the military service of our country?

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THE SCHOOL OF APPLICATION FOR CAVALRY AND FIELD ARTILLERY, U. S. A.

TRAINING SCHOOL FOR FARRIERS.

Object:—To train enlisted men in the art of horse-shoeing and in the care of sick and injured horses owned by and used in the U. S. Army.

This school was established several years ago, at no little

expense, at Fort Riley, Kas., the approximate centre of the United States.

The officers are as follows:

Commandant—Colonel of Cavalry.

Secretary—Captain of Artillery.

Director—Captain of Cavalry.

Instructors—Two Cavalry Veterinarians; one Artillery Veterinarian; one Civilian Veterinarian (this latter veterinarian being a civil service appointee, instructor for the School of Shoeing).

Practical instruction is conducted by the different veterinarians at the large new hospital recently erected, which by the way is one valuable adjunct to this Military Post; more of them are contemplated being built at large posts in the different States.

Several hours daily are devoted to the stable care and management of both healthy and sick animals. Recitations in commodious lecture rooms are conducted one hour daily to each class of fifteen or more men.

Theoretical Training.—A simple, plain but thorough text is followed, one which can be easily learned and committed by the average soldier. Anatomy, physiology, first aid and treatment of the ordinary diseases, accidents and injuries are fully taught.

Conformation of horses suitable for military purposes, is another subject that is carefully gone into. Strict adherence to technical terms is not followed, common terms being applied when practicable; however, it has been found that the average man entering this course is capable of learning intelligently and applying technical terms quite readily.

Several subjects are dissected during each session, which extends over a period of four months, so giving each member of the different classes an opportunity to familiarize himself with the anatomical parts of the cadaver.

Medicines. — During the short course given, time will not allow a careful or even a preliminary study of chemistry; even therapeutics can only be glanced at. We do, however, teach the principles of "first aid" and render many men competent to treat ordinary cases under emergency. A man thus qualified, upon examination of a Battery or Troop of horses, can usually detect the early symptoms of disease, by virtue of his physiological and anatomical knowledge of the subject.

The Character and Material of our Men. — Men of several

years service, men of good character only, those recommended by their organization commanders and those having shown previous mental ability, are desired and chosen for this work.

Men from all mounted organizations in the States are chosen twice a year, this with the object of keeping in the service a constant supply of trained and useful assistants. Discipline in the school applies to all as in the regular service and is under the supervision of the Director, who is a staunch friend to the veterinarian. The military student, however, makes an attentive and "eager-to-learn" pupil for several reasons; he feels that he is receiving useful knowledge, it relieves the routine of drill and other military work, he feels better satisfied with his pay and it brings him in closer relation with his charge, the horse.

L. E. WILLYOUNG,
Veterinarian Artillery Corps.

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PERSONAL.

WALTER R. PICK, veterinarian 1st Cavalry, writes from Fort Sam Houston, Texas, under date of March 14: "I take this opportunity of informing you of a very pleasant two hours spent by Dr. Power, of the A. C., and myself with Veterinary Director-General Rutherford, of Canada, who remained a few hours in San Antonio on his homeward trip from Old Mexico. The Doctor is looking well and states that the Southern climate has improved his health."

COLLEGE COMMENCEMENTS.

SAN FRANCISCO VETERINARY COLLEGE.—The following were graduated from this college at the 1906 examinations, receiving the degree of D. V. S.: Isaac E. Newson, Fort Collins, Col.; A. G. Fisk, Reno, Nev.; J. E. Knauss, Logansport, Ind.; Alvie McDaniels, Biggs, Cal.; A. B. Byles, M. C. P., Victoria, B. C.; G A. Rosenberger, Ph.G., Selma, Cal.; Robert Waddell, Concord, Cal.; Joseph Tognotti, San Francisco, Cal.; Harry Rosenberry, Auburn, Cal.; F. T. Notz, Corning, Cal.; John Iverson, Chualar, Cal.; Wm. F. Reardon, Hollister, Cal.; Chas. Price, Santa Ana, Cal.; George Taylor, Redding, Cal.; and Arch. Asbill, Middletown, Cal.

EXTRACTS FROM EXCHANGES.

HUNGARIAN AND GERMAN REVIEW.

By ADOLPH EICHHORN, D. V. S., Bureau of Animal Industry, Great Bend, Kansas.

THE TRANSIBILITY OF THE GASTRO-INTESTINAL CANAL OF NEWLY-BORN ANIMALS FOR BACTERIA AND GENUINE ALBUMINOIDS [*A. Uffenheimer*].—The author found through feeding experiments that the gastro-intestinal canal of the newly-born guinea-pig will not transit the *Micrococcus tretragenus*, the anthrax bacillus and the *Bacillus prodigiosus*. On the other hand, the transibility was observed in the newly-born guinea-pig (also old) of *Tubercle bacilli*, which made the animals tuberculous, even after one feeding of a small quantity of culture material; the tubercular infection ensued either from the buccal cavity or from the gastro-intestinal canal, and in most cases without causing lesions in the mucous membranes. Feeding experiments with a specific hæmolytic serum with cow's milk casein and white of an egg, proved no resorption, and consequently no formation of antibodies, while diphtheria and tetanus antitoxins passed in small quantities into the blood of newly-born guinea-pigs. From these experiments the author concludes, that in the newly-born guinea-pig in general, neither bacteria nor genuine albuminoids are taken up by the gastro-intestinal canal, with the exception of *Tubercle bacilli* and antitoxins.—*(Muench. Med. Wochenschr.)*

TO THE QUESTION OF THE SO-CALLED GERMINATIVE TUBERCULOSIS IN ANIMALS [*J. Karlinski*].—From three bucks in which testicular tuberculosis was produced by direct injection of *Tubercle bacilli* into the testicles, K. received offsprings with tubercular changes, while the mother animals proved on autopsy perfectly healthy. From these the author concludes, that the transmission of tuberculosis from the paternal organism to the egg through the semen is quite possible and does not occur as seldom as it is generally believed. Therefore, a careful selection of breeders and their testing with tuberculin appears very essential.—*(Zeitsch. f. Thiermed.)*

AN AMPUTATION OF THE UTERUS IN A COW [*R. Mayer*].—The author was called to attend to a cow which calved three hours previously, and in which soon after the expulsion

of the fœtus, the uterus prolapsed. The owner replaced partly the uterus, and to prevent a further prolapse he applied a checking bandage. On arrival of the author the cow laid on the ground straining severely; the uterus was considerably prolapsed on both sides of the bandage; its color was blackish red, and at the places where pressed by the bandage it was œdematous. M. cleansed the uterus from the remains of the placenta, bathed the same in a cold boracic acid solution and applied massage to the organ. As the replacing was fruitless after one hour of hard work, and the cow could not be induced to stand, and also as the elevation of the hind part proved unsuccessful, M. holding the uterus quite high, so as to prevent the intestines from slipping between, ligated it, and attached to the string two pieces of wood, having two assistants to draw on them every two—three minutes, thereby tightening the ligature. Following this he severed the uterus about five cm. behind the ligature; he ligated a profusely bleeding vessel and replaced the stub into the abdominal cavity after pouring pure creolin on the same. On the following day the animal refused to eat, but on the third day she got up, eating well; after 14 days the string dropped off, and after six weeks only very slight discharge was present. The secretion of milk remained continually plentiful. —*(Wochenschr. f. Thierh. u. Viehz).*

TRUE PRIMARY PEARLY DISEASE OF THE PERITONEUM IN A CHILD [*Dr. A. Uffenheimer*].—Tuberculosis in the form of pearly disease is of very rare occurrence in human beings. Up to date only four such cases are recorded in the literature. Another such case was observed by the author, which also is remarkable, as it apparently represented a primary infection through the intestinal canal. This case occurred in a one-year-old boy, who died after a prolonged illness. At the autopsy it was found that the serous membrane covering the intestines contained numerous flat, round nodules, of grayish-red color, in sizes from a millet seed to a pea. At several places, the nodules confluated up to a size of a ten-cent piece. Some were surrounded by marked infection of the bloodvessels. Similar nodules were found on the mesentery. Some of the new formations were attached with thin fibres to the intestines; some again were suspended in the abdominal cavity. Most of the nodules were located on the small intestines; however, the large intestines were also affected to some extent. Further, there was found tuberculosis of the liver, spleen, lungs and brain. According to the author, this case can be considered as a tubercular

infection through the intestines. The lung affection can only be traced back to a hæmatogic origin, as the corresponding lymph glands were normal. Considering the source of the infection the author believes that an infection of bovine origin can be excluded, as the child always received the milk boiled or pasteurized. On the other hand, it appeared very likely that the father infected the child, in whom tuberculosis was proven. —(*Muench. Med. Wochenschr.*)

REDUCTION OF THE DEATH RATE FROM TUBERCULOSIS.—Robert Koch in a speech on the occasion when receiving the Nobel prize at Stockholm, remarked besides other things that in Prussia since 1886, from year to year a reduction in the death rate from tuberculosis is recorded; in spite of the fact that the populace is increasing. At the present 20,000 less people die from that cause than 20 years ago. The reduction in this time amounts to 30%. Also considerable improvement is noticed in this respect in England and Sweden, while in Austria-Hungary the death-rate is the same to-day as it was at the time of the discovery of the *Tubercle bacilli.*

GERMAN REVIEW.

By J. P. O'LEARY, D. V. S., Bureau of Animal Industry, Buffalo, N. Y.

VARIATIONS OF THE AGGLUTININE AND PRECIPITINE CONTENTS OF THE BLOOD DURING GLANDERS INFECTION [*Dr. Benome*].—B. has selected the following main points from his investigations: (1) That the blood serum of the horse and the ass shows a considerable increase of the agglutinine contents during the experimental glanders infection as well as during the artificial immunizing against the glanders bacillus. This increase has no relation to the severity of the infection and seems to appear more rapidly if the inoculation of the glanders bacilli takes place through the abraded nasal mucous membrane than if it had happened through the normal digestive tract. (2) The agglutinating power of the blood of the glandered horse is raised during the mallein reaction. This rise, which can reach a very high degree, is nevertheless transitory, it bears no relation to the intensity of the thermic reaction caused by the malleinization; it is, however, always of organic reaction and accompanied by an œdematous swelling at the point of inoculation. (3) In horses that have ceased to react to mallein and in which a more or less marked organic reaction takes place, there

appears during the malleinization a considerable increase in the agglutinating power of the blood serum. This increase of the agglutinative properties has considerable value in the diagnosis of certain suspicious forms of glanders. (4) The behavior of the blood serum with regard to its agglutinative properties toward the glanders bacillus shows many analogies with the behavior of the whole body toward mallein poisoning. As in this, the agglutinine contents may show considerable variations and even become weakened to the normal degree, although the horse remains glandered. This diminution of the agglutinative properties of the blood serum of doubtful glandered horses can be explained by the formation of other kinds of antibodies outside; that is, through the anti-complements, which by neutralizing the normal complements hinders the phenomena of agglutination. This assertion is founded on the result of the successful reacting experiments which took place through the addition of the sera of healthy horses, cats and men. (5) Warming for an hour at 52 to 56 C. the serum of glandered animals (horses, cats, and guinea-pigs) does not destroy the agglutinative power entirely, and that warming for one hour at 62 to 65 C. destroys it completely. The agglutinative power returns if normal sera from other animals is added in the proportion of 1 to 2 or 1 to 3 to serum which is made ineffective through heating. The complement of the normal feline serum reacts much better than that of normal human serum on the agglutinative power of heated horse serum. The complements in the case of guinea-pigs is about the same as that of human. (6) The agglutinines are always found in larger quantities than precipitines in the serum of glandered horses, cats and guinea-pigs. The filtrate of bouillon cultures of glanders contain no substances precipitable by serum whatever, or in quantities scarcely perceptible. Larger quantities of precipitable substances on the other hand are found in the plasma taken from fresh organs (spleen) of glandered cats and the aqueous glycerine extract from fresh or dried agar cultures of glanders. This difference is explained by the assumption that the filtrate of bouillon cultures of glanders bacilli contains the soluble toxines of the glanders bacilli only and not the proteins, which on the contrary are found in larger quantities in the aqueous glycerine extract of the glanders cultures triturated with powdered glass.—(*Centralblatt fur Bak. Parisit. und Inf. Krank.*)

CONTRIBUTION TO OUR KNOWLEDGE OF THE STUTTGART CANINE EPIZOÖTIC [*Dr. Jacob Wohlmuth*].—The author next

speaks of the symptoms of what on account of the locality in which it first appeared was called the Stuttgart infectious disease of dogs, which as we know are those of a severe gastro-enteritis with ulcerative processes in the oral cavity and intestinal tract, which make their appearance rapidly and usually terminate fatally. After recounting the results of 49 post-mortems W. speaks of therapeutic measures. He advises, if possible, early in the disease, the frequent flushing of the stomach and intestines with warm, thoroughly diluted liquid disinfectant solutions (creolin, lysol, bacillol, etc.,) the body being kept warmly clothed (wrapped up). To combat the debility the hourly administration of a tablespoonful of pure, strong warm black coffee, and to prevent vomition 15 drops of ethereal tinct. of valerian, three times daily. When the appetite returns two to four doses daily of bismuth subsalicylate and sodium bi-carbonate *āā* O. 5.—(*Tier. Centralblatt, 1905, No. 8.*)

CONCERNING THE POSSIBILITY OF THE DISSEMINATION OF TUBERCULOSIS THROUGH THE USE OF SALTED MEATS [*Towzig*]. — Towzig alludes to the fact that the meat of tuberculous animals from which the diseased parts have been removed, is declared free, notwithstanding there can be present sufficient infected material in the lymph spaces and in the muscular interstices. That salting and smoking does not destroy the spores. In a series of experiments Towzig has attempted to demonstrate in the Hygienic Institute at Padua by inoculation upon guinea-pigs the danger of infection from Salami sausage made from the meat of tuberculous animals. (Towzig's experiments must be viewed in the light of scepticism, since many other careful investigations long since proved the untenability of the results of his investigations.) — (*Munchene Med. Wochenschrift, No. 29.*)

BLOODY MILK. — Tierärzt Horst reports the case of a newly-bought cow in the advanced stage of pregnancy which in testing for milking qualities gave a dark red milk from all four teats and which in consistency and fluidity resembled milk. Examination of the udder proved an absence of mammitis. Microscopical examination revealed the presence of innumerable red blood corpuscles; the *Bacillus prodigiosus* was not found. He advised the owner to wait until the cow calved; this event occurred in due time. The red milk disappeared the first days after calving and the animal is now the best milch cow on the premises. — *Berliner Tier. Wochenschrift, No. 24.*)

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

A CASE OF ABDOMINAL STRANGLES [*H. D. Jones, M. R. C. V. S.*].—Recently bought, this Irish gelding, six years old, has not been well since purchased. Lays down often, appetite capricious, yet in fair condition; mucous membranes pale, pulse small, temperature 101 F. He was placed under observation, as he presented nothing definite for a diagnosis. His condition remained about the same, as related by the owner. He had no abdominal pain, appetite very poor, fæces very small and dry, and he constantly laid down. His temperature registered once 102.6. By rectal examination a huge mass could be detected, on the right side, a little back of the kidney. It was fairly hard and felt heart-shaped, with the apex toward the anus. It was slightly movable. As the case seemed to be hopeless, no special treatment was prescribed, and the animal was turned loose in a small paddock and watched. After two months he died, and at the post-mortem the large mass, which weighed 18 pounds, proved to be an abscess, to which the small intestine was adherent. Streptococci of strangles were found in the pus. The case was evidently the abdominal form of that disease.—*(Veterinary Record, Oct. 14, 1905.)*

CURIOUS FOREIGN BODY IN THE LUNG [*James Smith, M. R. C. V. S*].—Record of the post-mortem of a three-year-old bullock, which was suffering with pneumonia, and as he was getting worse, was slaughtered. At the dressing of the carcass an abscess was found under the pleura, near the apex of the right lung, containing about four ounces of very fœtid pus. In it was found the end of a briar, which on being traced up was seen entering from a small to a larger bronchial tube and terminating at the bifurcation of the trachea. It measured a foot and a half in length, and had 15 thorns and two dead leaves on it.—*(Veterinary Record, Oct. 14, 1905.)*

A STRANGE ABNORMALITY IN A TWO-YEAR-OLD RIDGLING [*R. Mason, M. R. C. V. S.*].—At the time of the operation a large mass was found on the right side, to all appearances too large to pass through the inguinal ring. There were adhesions, which had to be broken up, so as to free the mass. By gentle and steady traction it was then brought down into the scrotum easily, and proved to be an abnormally large testicle, having on

its side, attached to it, a smaller soft testicle. Each of the organs had its own well-developed spermatic cord. The testicles were united by a thick round cord about three inches long, Siamese-twin fashion. The colt made a good recovery, and the operation was a success in modifying the disposition of the colt. The author asks if a similar condition had ever been observed by others.—*(Veterinary Record, Oct. 21, 1905.)*

UNUSUAL CASE OF MILK FEVER [*J. H. Parker, M. R. C. V. S.*].—A five-year-old pure-bred Jersey cow calved May 3, and on the 4th is found down unable to rise. Seen that morning by the author, she is quite comatose, and, looked at casually, appeared as if she was dead. The udder is injected with air filtered through cotton-wool containing a little iodoform, and the spine is stimulated. In the evening at 6 o'clock she is up and feeding. The next morning, 5th, she is found down again, comatose, and in as bad condition as the day before. Air is injected every two hours. In the evening she is improved, resting on her sternum, and the next morning is up and appears all right. She is down again on the 7th, comatose. Same treatment is renewed, and she slowly recovers; it took her a week. She showed during that time partial loss of power—now it seems in the fore part of the body and again in the hind quarters. The right hind leg is swollen, and pits on pressure. On the 17th she has sloughing of the skin on the back of the fetlock, followed on the 24th by that of the inside claw. A leather boot was made, into which the toe was dressed, allowing of the formation of a brittle kind of horn. Finally the cow got entirely well, and has fattened two calves during the summer.—*(Veterinary Record, Nov. 4, 1905.)*

PAPILLOMATOUS GROWTHS IN THE ŒSOPHAGUS OF A HEIFER [*R. J. Hickes*].—For the past few months this animal, which is two years old, has had repeated attacks of choking, and lately these have become so frequent that the œsophagus shows marked distension after feeding. For a while the diet has been entirely milk, thick gruel of oatmeal, and linseed; but after a month of this regime the animal has lost flesh rapidly. The œsophagus then from the angle of the jaw to the entrance to the chest is distended and nearly the thickness of a man's arm. Supposing the presence of a jabot within the thoracic cavity, slaughtering is recommended. When the œsophagus is removed and opened the mucous membrane in its whole length is found covered with warty growths. Some of these are of the thickness of a finger and an inch and a half long, not differing

much in appearance from the papillomatous growths so frequently found growing on the skin of young cattle.—(*Veterinary Record, Nov. 11, 1905.*)

CYSTIC TESTICLE IN A CRYPTORCHID HORSE [*R. I. Hickes*].—This is the record of an operation performed on a three-year-old coaching stallion, which had not been castrated earlier because of the absence of one testicle—that of the right side. The steps of the operation were well performed, and the hand introduced in the abdomen. On tracing the spermatic cord, instead of finding the testicle, a large object was discovered, giving the impression of a largely distended urinary bladder. This object was adherent to the floor of the abdomen, from which it was detached with some difficulty. Finding it too large to pass through the opening and to be withdrawn from the abdomen, it was punctured with an exploring needle and drained of its contents until sufficiently reduced to be brought out to light, when the operation was concluded with the ecrazeur. The cyst was afterwards refilled at the water tap to its previous state of distension, as far as it was possible to judge, and its contents measured nearly 39 fluid ounces. No portion of the normal gland tissue of the testicle could be found in connection with the cyst, and the condition of the epididymis was normal.—(*Veterinary Record, Nov. 11, 1905.*)

HYDRONEPHROSIS IN A COW [*A. Spreull, F. R. C. V. S.*].—This is the record of the case of a cow in which an accurate diagnosis of her ailment had not been made, as, although apparently very sick, she had not presented any special symptoms, beyond intestinal disturbances, manifested by a very profuse fœtid diarrhœa, and an unhealthy, itching coat. Tonic treatment and nutritious regime was prescribed, which seemed to improve her for a while, but one morning she was found by her owner in a dying condition, and she was killed at once. Her carcass was found well nourished, fairly fat, and free from any kind of disease, except toward the kidneys. These on being removed were found to weigh respectively ten and sixty-three pounds. The large kidney was one of hydronephrosis, probably due to obstruction of the ureter. Almost the entire substance of the organ had disappeared under the pressure of the accumulating urinary secretion, and the organ was represented by a series of thin-walled cavities, containing a yellowish-white, turbid but not putrid liquid. The smaller kidney, although weighing ten pounds, was not cystic, and its enlargement appeared to be due to hypertrophy.—(*Jour. of Comp. Pathology and Therapeutics.*)

PERINEAL HERNIA IN A DOG [*Geoffrey Livesey, M. R. C. V. S.*].—Suffering from rectal impaction, an Irish terrier, about ten years old, was brought to the author. The rectum was enormously distended and it took considerable time and trouble to remove the fæcal collection. Since then a swelling appeared and gradually increased until it assumed large proportions. The dog grew worse, had other impactions, and, although repeated enemas were given, became a sad sight. Another impaction had been removed, but the swelling was always there disfiguring the animal, situated as it was on the right side of the tail and anus, pushing the anus over to the left. The skin over the tumor was easily compressible with the fingers, and felt like the inflated walls of a cavity. Rectal examination gave no clue to the nature of the swelling. The prostate was enlarged and painful. Although the swelling was slightly influenced by the position of the dog, it could never disappear entirely. An operation was decided upon. The swelling was incised, a cavity exposed, from which escaped a large piece of omentum. The diagnosis was evident. The omentum was replaced, kept in the abdomen, and stitches applied. This part of the operation was more difficult than anticipated. "The skin and fascia forming the roof of the growth offered a good hold. Four good deep stitches were inserted between the roof and floor of the sac, thus obliterating the cavity without injuring or interfering with the rectum. A strip of skin was slipped from the edges of the outer wound and a row of closely placed interrupted sutures of silk worm gut inserted, the surface washed with perchloride, dried and covered with the preparation 'new skin' (?) over cyanide gauze." The dog did well and the hernia never recurred.—(*Veterinary Journal, Nov., 1905.*)

THE New York State Board of Health has burned the barns on the Scarsdale Estate (formerly the country home of the late merchant-prince A. T. Stewart), as they were declared to be a breeding place for glanders. Seven horses found on the premises suffering from glanders were shot.

VACCINATING THE SOIL is greatly encouraged by the U. S. Department of Agriculture. This department is sending out packages of bacteria for the purpose of fertilizing the soil. These microbes have the power of taking nitrogen from the air and storing it in the soil, and thereby greatly increasing the yield of peas, beans, etc.

CORRESPONDENCE.

THE ETIOLOGY OF AZOTURIA.

LOS ANGELES, CAL., February 20, 1906.

Editors American Veterinary Review :

DEAR SIRS :—I have just finished reading Dr. Pressler's paper on azoturia, and, while I think his ground is absolutely untenable, it shows what a diversity of opinions men may have on the same subject.

Azoturia is one of the most frequent diseases we have in California. I have seen many hundreds of cases; some died in two hours, others lived for six weeks ; some got well that I did not think had a ghost of a chance, and others died that I thought had no right to.

We have it at any season, after enforced idleness, regardless of temperature ; more common in winter, as that is the season when rains interfere with work ; not because it is cold, as there is hardly a day in the year that the thermometer will not go up to 60°. Have seen it after one day's rest, and in one instance where the horse had not been out of a small corral for a month.

I cannot see that sex makes any difference, or that one attack increases the fatality or violence of a subsequent one ; have known horses to have a light attack five or six times, that would be partially due to increased knowledge of the driver, who would immediately stop at the first symptoms.

I don't believe there can be any doubt about the disease being caused by an over-accumulation of albumen in the system, but what the pathology is and what chemical change takes place will take a different shaped head than mine to find out.

In this State, 99 out of 100 horses are fed barley grain and some form of grain hay, either wheat, oats or barley, mostly the latter, all very rich in albumen. When I lived in Kansas twenty years ago, where the prevailing feed was corn and prairie hay, the disease was almost unknown, and when it did occur it was in an oat-fed horse.

I am told that in the Southern States where corn is fed, veterinarians never see a case. Of course, they work mostly mules, and I have never seen or heard of a mule having it. The most of the cases here are light attacks that pass off with a few hours' nursing and treatment, but of those that go down the mortality is very great.

Now, I want to ask a few questions through the REVIEW,

and I hope it will receive a hearty response from every State in the Union; so that when published it will give us a mass of data that will be valuable:

Is azoturia common in your locality?

Is it very fatal?

Have you ever seen it in mules?

What kind of hay and grain is fed in your State mostly?

What season of the year is it most prevalent?

A concise and early answer to the above, sent to the AMERICAN VETERINARY REVIEW, will confer a great benefit to all veterinarians.

Don't think there will be so many that yours will not be needed.

R. T. WHITTLESEY.

THE INJURIOUS EFFECTS OF MALVA PLANT.

SANTA BARBARA, CAL., Feb. 15, 1906.

Editors American Veterinary Review:

DEAR SIRS:—Is the common malva plant *(Malva Borealis)*, which grows so extensively upon the cultivated and pasture lands of the Pacific Coast, ever injurious to stock?

Scientific botanists say no, it cannot be, for it belongs to a harmless natural order of plants.

The Department at Washington, in reply to my query, stated that the only previous intimation of such a suspicion that had been reported to them had been from a veterinarian in Arizona.

The majority of stockmen will look at you in amazement when such a question is proposed, because they know that stock of all kinds eat it readily and seem to thrive upon it when other green feed is scarce. But some of the more observing stockmen, and especially butchers, while admitting that stock will thrive upon it, claim that if stock which has been feeding upon it for some time are called upon for any unusual amount of exercise, symptoms of a sort of nervous collapse are liable to develop suddenly, and, if the affected animals are still urged on, they are liable to go down and probably never get up.

During our drouth of a few years ago pastures were dried up, feed of all kind was scarce and high priced. When the rains came malva was the first vegetation to spring up, and soon furnished almost the exclusive food for a large portion of our stock. When the time came to put the horses to work the alarm was

sounded that some new disease was prevailing among the horses of this locality, from the effects of which a number had died. Horses that seemed alright when harnessed in the morning would give out and go down while at work. Colts that were being transferred from one pasture to another a few miles distant went down on the road. Investigation showed that the same symptoms developed in cattle when called upon for unusual exercise.

My first experience was for a patron who owned a number of horses and was depending upon the green feed, which was almost exclusively malva, to support them. He had caught up four head and brought a moderate sized load to town, a distance of about three miles. On arrival, noticing that one horse was sick, he drove at once to my place. When I went out the animal was standing in a team with head down, legs braced, muscles all quivering, the respirations quick and shallow. In fact, presented a case that might easily have been mistaken for acute indigestion. We had to go about four blocks to the stable. I was fearful that she would go down before we could get there. Imagine my surprise on seeing her grab a mouthful of hay as she staggered past the manger into a box-stall, where she dropped down, heaved a big sigh, just as a person will do when exhausted, and began munching away at the hay. I gave a dose of eserine and pilocarpine. She soon seemed to be getting easier, and I left, returning in about one hour and a half. I found her standing at the rack eating hay, the medicine having operated. This same patron had a similar case a few days later. I was out when he called ; the horse was left at the stable without any treatment, with orders for me to attend to it as soon as I arrived. It was about one hour and a half later when I returned and found the horse standing at the rack eating hay apparently as well as the one I had treated. I made up my mind that I had something new to deal with, so set about investigating it.

This same owner had other horses affected later, and found that if they were allowed to stop and rest as soon as the first symptoms appeared, they would soon recuperate, while one or two that were taken on the road home, and that he urged on, endeavoring to get home, went down and took several days to recover.

From what I could learn in all cases where death occurred, the animal had been urged on until it collapsed and went down.

Since that time I have been always on the alert for information concerning the effects of feeding malva. I have met a

number of stockmen who have noticed the same effects that I have mentioned, and I have met with several cases that I diagnosed as malva poisoning, and investigation proved that in each case the animal had been subsisting largely upon malva for sometime.

With a complete change of feed, it requires sometime before the animals cease to show the effects of the malva when called upon for unusual exertion.

Have any of the readers of the REVIEW noticed any ill effects from the use of malva, and can any one explain the nature of the disease? Respectfully yours,

JAMES H. HESTER, V. S.

IN RECOGNITION OF THE DISCOVERER OF THE SCHMIDT TREATMENT.

WEEPING WATER, NEBR., March 17, 1906.

Editors American Veterinary Review:

DEAR SIRS:—I take pleasure in sending a translation from a Danish newspaper, which I am sure will be of interest to the veterinary profession in America.

"Last October it was unanimously decided by the Royal Danish Agricultural Society to present Veterinarian I. I. Schmidt, of Kolding, Denmark, the Gammeleje Honor Prize, the first time it is to be presented. The Society individually has also honored Mr. Schmidt by presenting him a large silver loving cup, accompanied by a diploma with the following inscription: 'The Royal Danish Agricultural Society has herewith the honor to present you the Society's largest Silver Cup, which we beg of you to accept as an evidence of the admiration and gratefulness that the Danish Agriculturist cherishes towards you for the valuable discovery of successfully treating Parturient Paresis.'"

Would it not behoove us as veterinarians of the United States, who have reaped such a great benefit from this discovery, to in some way show Mr. Schmidt an evidence of our appreciation? Respectfully yours, H. JENSEN.

THE ITALIAN EXPERIMENTS WITH BOVOVACCINE.

NEW YORK, Feb. 26th, 1906.

Editors American Veterinary Review:

DEAR SIRS:—Again referring to the correspondence entitled "The Present Status of Vaccinations against Tuberculosis in Cattle," appearing in your January number of the pres-

ent year, we beg to say that we have recently received information in regard to the experiments with von Behring's bovovaccine by the Italian Commission, of which the article referred to speaks. From the information received (which came in the form of a private communication from Prof. Belfanti, of Milan, to Prof. von Behring), it would appear that the experiments are as yet not finished.

Prof. Belfanti, in referring to the two vaccinated calves, which had subsequently been subjected to a test-inoculation with tubercular virus, of bovine origin, and which upon slaughter were found to be slightly affected with localized tubercular lesions, writes the following:

"We have received the impression that a resistance against the injected virus had actually been established, and that the lesions of tuberculosis as found had probably developed during the period between the first and second vaccinations, owing to the fact that in the region where these experiments were being conducted, tuberculosis was especially prevalent."

Inasmuch as these experiments were begun with 15 animals, only four of which have so far been reported upon, it is evident that we must await the final report, which is due to appear very soon, before any conclusions can be drawn.

Very respectfully,

C. BISCHOFF & CO.

IT is not the amount of knowledge a man has that makes him a good physician; it is the amount he uses.—*(Exchange).*

"THE MARCH REVIEW was a whopper and no mistake. The Chicago inspectors have repeatedly expressed their admiration for the work which the REVIEW is doing.—(*D. Arthur Hughes, Vet. Ins., Commissary Dept., U. S. Army, Chicago.*)

TOTAL VALUE OF ANIMALS on farms $3,600,000,000! This in a word is the showing in *New England Homestead's* annual inquiry into the numbers and values of animals on the farm at an early January date. The sum named, difficult to grasp in its vastness, is nearly $300,000,000 more than the total value of live stock on the farms a year ago. Every branch of animal husbandry shows gratifying gains, nowhere so marked as in horses. The figures indicate that the general price tendency is upward, the possible exception being beef cattle, which show an average price very much as a year ago. Compared with the low point of some years ago, when everything was very much depressed, prices in some instances have more than doubled.

BIBLIOGRAPHY.

THE PATHOLOGY AND DIFFERENTIAL DIAGNOSIS OF INFECTIOUS DISEASES OF ANIMALS. By Veranus Alva Moore, B.S., M.D., Professor of Comparative Pathology, Bacteriology and Meat Inspection, New York State Veterinary College. Second Edition, revised and enlarged. Illustrated. Ithaca, N. Y.: Taylor & Carpenter, 1906.

This important text-book was first issued about three years ago, and it was received by the profession with that confidence which the great reputation of its author justified, being regarded as an exposition of the subject by one who is not only a very hard student in his chosen field, but one with vast experience and exceptional opportunities, as well as natural adaptability. In the second edition Dr. Moore (who gracefully and gratefully dedicates his work to the man who has done so much for comparative pathology, Dr. D. E. Salmon), has taken advantage of the advances that have been made in the study of the various infections of animals, and the work in its present form, while condensed into the fewest words commensurate with a clear statement of all the accepted knowledge upon the nature of infectious diseases, may be regarded as a complete presentation of the pathology and differential diagnosis of the various infections.

The classification of infectious diseases according to their etiological factors is undoubtedly the most rational and best method, and the author adheres to a system of description which omits nothing that is essential in their study. For instance: The successive sub-headings in the study of an individual disease include the name and its synonyms, characterization, history, geographical distribution, etiology, symptoms, morbid anatomy, and differential diagnosis, together with an extensive bibliographic reference.

The book is divided into fourteen chapters, and the following gross *résumé* of their subjects will give an idea of the extent of the field covered: Chapter I., general consideration of etiology, infection and specific infectious diseases; Chap. II, diseases attributed to wound infection; Chap. III., diseases caused by bacteria—genus, streptococcus; Chap. IV., diseases caused by bacteria—genus micrococcus; Chap. V., diseases caused by bacteria—genus bacterium; Chap. VI., diseases caused by bacteria—genus bacillus; Chap. VII., diseases caused by bacteria—family spirilliaceæ; Chap. VIII., diseases caused by fungi; Chap. IX., diseases caused by protozoa—genus piroplasma; Chap. X., diseases caused by protozoa—genus ameba; Chap. XI., diseases caused by protozoa—genus trypanosoma; Chap. XII.,

infectious diseases for which the specific cause is not yet determined; Chap. XIII., immunity and protective inoculation; Chap. XIV., disinfection.

The REVIEW commends most heartily this splendid product of the great energy of probably the most capable author in this country upon a subject which is his life-work. The publishers have done full justice to the work in the matter of typography and general excellence of the materials used. It is safe to say that every library which aspires to possess the best works on all veterinary subjects must have in a prominent place Dr. Moore's book, or else abandon its title to completeness.

DISEASES OF THE HORSE'S FOOT. By H. Caulton Reeks, F. R. C. V. S., author of "The Common Colics of the Horse." Chicago: Alex. Eger, 1906.

The virtual *furore* created among veterinary practitioners by the work on "Colics" by Mr. Reeks, resulted in his undertaking the preparation of the present volume on that other seat of practical problems for the practicing veterinarian, the horse's foot. He has gone about the subject in that energetic and decisive manner that characterized his maiden effort, with the result that he now offers to his *confrères* a complete treatise upon the diseases of the intricate structures of the essential organ of locomotion. We have carefully examined this volume, and nothing appears to be omitted which was best in other textbooks, while much is offered which is new and original with its original author. He goes at the subject in a systematic manner, taking first the regional anatomy, then general physiological and anatomical observations, methods of examining the foot, general remarks on operations on the foot, faulty conformation, diseases arising from faulty conformation, wounds of the keratogenous membrane, inflammatory affections of the keratogenous apparatus, diseases of the lateral cartilages, diseases of the bones, and diseases of the joints. Under the above classification nothing is overlooked, while throughout the whole range of the subjects the individual judgment of a close and intelligent observer stand out boldly, giving the work a much greater value than is possessed by those which simply codify from the writings of others.

Alex. Eger, of Chicago, places the work on the American market, in a manner worthy of its valuable contents. All who have read the "Common Colics of the Horse," will readily become owners of this work on the foot, besides a vast number who find that specialization on lameness necessitates the ownership of every good addition to the literature of the diseases of the feet.

SOCIETY MEETINGS.

VETERINARY ASSOCIATION OF MANITOBA.

The annual meeting of this Association was held in the City Hall, Winnipeg, on Tuesday, Feb. 13th, 1906, at 9.30 A. M., the President, Hon. D. H. McFadden, in the chair. The following were present: —Drs. Bradshaw, of Portage la Prairie; Cook, Virden; Cruikshank, Deloraine; Dunbar, Winnipeg; Harrison, Glenboro; Hayter, Birtle; King, Souris; Irwin, Stonewall; C. Little, Winnepeg; M. Little, Pilot Mound; Leslie, Melita; Mack, Neepawa; Martin, Winnipeg; Milloy, Morris; McFadden, Emerson; McArthur, Hartney; McGilvray, Winnipeg; Ovens, Swan River; Rowcroft, Birtle; Rombough, Morden; Scurfield, Crystal City; Stevenson, Carman; Simpson, Yorkton; Swenerton, Carberry; W. Thomson, Minnedosa; Torrance, Winnipeg; Whaley, Glenboro; Welch, Roland; Williamson, Winnipeg; Woods, Winnipeg; and Young, Rapid City.

The minutes of the previous meeting having been read and adopted, the auditors presented the following auditor's report;

"This is to certify that we have this day examined the books of the Manitoba Veterinary Association and find them correct.

A. E. Williamson.

"Chas. Little."

On motion of Drs. Stevenson and McGilvray, the report was adopted.

REPORT OF THE SECRETARY-TREASURER AND REGISTRAR.

The Secretary-Treasurer and Registrar then presented the following report:

"The past year seems to have been a prosperous one for the veterinary profession, the high price of horses and the prevalence of disease combining to make veterinary practice profitable.

"Unfortunately it does not seem to have rendered our members any more prompt than usual in the payment of their dues, and I am sorry to report that sixteen are in arrears. It is to be hoped that these will pay up promptly in the new year.

"Our Association has lost two members during the past year, one, Dr. A. R. Douglas, having left the province; the other, Dr. Walter Hurt, of Whitewater, died at the Winnipeg General Hospital, January 18th, last. Walter Norman James Hurt

was the son of Lieut. Hurt, a naval officer, and a member of an old Derbyshire family. He was born in 1875 and came to America about fourteen years ago, and after living in Colorado a short time, came to Canada, entered the Ontario Veterinary College, and graduated in 1896. After practicing in Ontario for some time he came to Manitoba and registered in July, 1898, practicing at Belmont and afterwards at Whitewater. His fatal illness arose from a slight injury received while on horseback, the horse stumbling and throwing him against the pommel of the saddle. Microbic invasion followed the injury, his leg became immensely swollen, and despite all that medical science could do he passed away after a long illness. He was greatly respected in his district and will be a loss to the community in which he lived. He was buried in St. John's Cemetery, several members of this Association attending the funeral.

"As Registrar I beg to report the following new members registered after passing the required examination: D. A. McArthur, Hartney, McKillip, '05; Wm. Thomson, Minnedosa, McKillip, '05; M. B. Stiver, Elgin, Ont., '95; T. Z. Woods, Winnipeg, McKillip, '05; H. Bradshaw, Portage la Prairie, Ont., '89; M. S. Kennedy, Elm Creek, McKillip, '05; L. H. McQueen, Selkirk, M.R.C.V.S., '06; Hugh Ovens, Swan River, Ont., '81. The total membership of the Association is now 86.

"As Treasurer I beg to submit the following financial statement:

"*Receipts.*—Annual fees, $128.00; examination fees, $200.00; interest, $77.8—$335.78; Balance 1905, $249.44. Total, $585.22.

"*Expenditures.*—Printing and advertising, $95.70; grants and prizes, $11.55; expenses of meetings, $19.10; stamps and stationery, $30.90; Secretary's salary, $45.35—$202.60; balance, 1906, $382.62. F. Torrance, *Secretary-Treasurer.*"

Upon motion of Drs. Dunbar and Little, the report was adopted.

PRESIDENT'S ADDRESS.

The President then addressed the meeting, expressing his pleasure at seeing the large gathering of veterinarians from all parts of the province.

He was glad to hear from the reports of the Secretary-Treasurer that the Association was in such a prosperous condition. It had now passed its period of weakness and was a strong, vigorous organization, and could point with pride to the best Veterinary Act on the statute books of any country. During

the past year he had looked into the standing of the veterinary profession in various countries, especially with regard to education, and had reached the conclusion that Canada was very much behind the rest of the civilized world in this respect. In European countries the average period of tuition was six or seven terms of six months each. In England four years was required, in America three years is the minimum with the exception of two private institutions, the Grand Rapids Veterinary College and the Ontario Veterinary College. He was glad to know that the profession in Ontario was alive to the necessity of better veterinary education, and was moving for the establishment of an up-to-date veterinary college, and from personal knowledge on the matter he believed the Government of Ontario was going to take the matter up and establish a veterinary college in connection either with Toronto University or the Ontario Agricultural College. He thought it would be wise for this Association to take steps to make known to our brethren in Ontario that we sympathize with the efforts they are making to elevate the standard of the profession.

In conclusion he thanked the members for their attendance and hoped they would find it a pleasant as well as a profitable meeting and assured them that, whether in active practice or not, he would do all in his power to advance the interests of the profession. (Applause).

The election of officers resulted in the following :—

President—Hon. D. H. McFadden.

Vice-President—W. E. Martin.

Secretary-Treasurer and Registrar—F. Torrance, Winnipeg.

Other Members of Council—W. A. Dunbar, Winnipeg; J. A. Stevenson, Carman; R. D. Scurfield, Crystal City, and C. D. McGilvray, Winnipeg. Examiners—Drs. Martin, Stevenson and Torrance.

The annual fee was fixed at two dollars.

Dr. Dunbar read a paper on a case of "Tumor of the Mammary Gland of a Mare" successfully removed, and exhibited the specimen weighing 11 lbs.*

The meeting then adjourned till evening.

On re-assembling at 7.30 P. M. Dr. Mack, of Neepawa, read a paper on "Puerperal Apoplexy," which was well discussed.

Dr. McGilvray then read the following paper upon "Glanders":

* Dr. Dunbar's paper and the discussion thereon will appear in the May REVIEW.

GLANDERS.*

Indexed.

By C. D. McGILVRAY, V. S., Winnipeg, Manitoba.

"In dealing with this subject it is my intention to do so chiefly with the end in view of placing before this Association what I might term as the, at least to me, 'enlightened practical experiences' gained during the past year whilst engaged in control work, dealing with outbreaks of glanders.

"*Prevalence.*—Outbreaks have been numerous during the past year, and the number of animals which it has been necessary to slaughter on account of being affected with glanders has been largely in excess of any previous recorded year in Manitoba, as shown by departmental reports. (In Health of Animals reports issued by Manitoba Department of Agriculture for years 1902, 1903 and 1904 and report for year 1905 of the Health of Animals branch, Dominion Department of Agriculture, which shows an increase in prevalency.)

"The increase in prevalency has no doubt been due largely to the lack heretofore, prior to Feb. 1st, 1905, of an adequate and effective policy of dealing with outbreaks.

"*Past Methods of Dealing with Outbreaks.*—Prior to February, 1905, at which time Manitoba was brought under the Federal Animal Contagious Diseases Act, in many of the outbreaks of glanders the clinically affected animals were the only ones dealt with and destroyed, the remaining contact animals on the premises being entirely overlooked and no definite steps taken at the time of inspection to ascertain their actual freedom from the disease, except by quarantining for a short period, at the end of which, if they did not develop any visible clinical symptoms, they were released as being healthy! *Non sequitur.*

"As you are no doubt aware, quarantining in the case of contact-infected animals to be of any avail would require to be an extended one of months and years, as an animal can be affected with an occult, latent or concealed pulmonary glanders and may remain so even for years, appearing to all outward appearances healthy, but nevertheless diseased.

"Again, when the necessary steps were taken to ascertain the actual condition of the contact animals on the premises as to health by the use of mallein, and where these contact ani-

*In a private letter Secretary Torrance says: "I commend to your especial notice Dr. McGilvray's essay on glanders. He has had a wide experience during the past year, having devoted his whole time to the suppression of glanders in this Province, and his paper is original in the best sense of the word.

mals did react to the test, slaughter was not in all cases enforced owing to the lack of an adequate compensation policy (as no provision was made as to the compensation for animals slaughtered, except wherein provided for by the rural municipalities). The non-enforcement of slaughter of these contact-infected animals which had reacted to the mallein test may be excusable, as these animals, although diseased and dangerous, still possessed a certain value to their owners, as their usefulness for work was not impaired.

"However, on the other hand, no valid reason can be given as to why these animals were allowed to be retained indefinitely by their owners without any definite restrictions and limitations being placed upon them. Under the then existing conditions what could and no doubt did occur in some instances, was twofold. Firstly, the owners now being in possession of an information and knowledge leading them to suspect these contact animals as a result of the mallein test (an information and knowledge to which they had no moral right and under existing conditions never should have had), and, secondly, on the other hand, being given to understand that these contact animal were healthy, without any definite steps having been taken to ascertain such by the use of mallein, they were very often thus, both knowingly and unknowingly, disposed of by their owners to some unsuspecting purchaser, thus giving rise to what might be termed a migration of contact-infected animals from one part of the province to another, constituting new areas of infection and giving rise sooner or later to outbreaks of glanders in what had hitherto been a healthy district. This has also occurred from the importation of the same class of contact-infected animals from the western ranges and the United States.

"Whilst glanders has been considered for 'ages past' both by professional men and intelligent horsemen as a disease which on account of its nature should be controlled and eradicated if possible, still the *bete noir* has apparently been what measures to adopt and enforce as a means of effectually controlling and eradicating outbreaks.

"The methods adopted by those engaged in this control work, not only here but elsewhere, have been varied, showing a wide divergence of opinion and method on the part of those engaged in such work, exhibiting in some instances not only a lack of knowledge as to the true nature of glanders, but a total unfitness for such work. This probably can be accounted for

in part by the unsound teachings which many of us have obtained in certain veterinary institutions at the feet of far more mysterious than otherwise enlightened teachers; also from certain text books which have taught that glanders was not a very contagious disease, and that it was easily recognizable, as it was characterized by an inodorous unilateral discharge from the left nostril, which was associated with a visible ulceration of the nasal mucosæ under alæ, enlargement and induration of the sub-maxillary glands which became adherent to the bone; or by the presence of farcy buds or ulcers on the limbs or body, and that a horse affected with glanders will show either one or more of these classical symptoms. All such text books, teachers and teachings, should, if not already there, be relegated to the category of 'derelicts and ancient historians,' as the true and unvarnished fact is that the majority of horses are not affected with clinical glanders showing plainly visible symptoms, but are affected with an occult, latent glanders (concealed pulmonary) without presenting any of the classical train of plainly discernible symptoms. Let us look with impartial eyes at the list of classical symptoms which many of us have had thus instilled into our minds and see how they compare with the actual symptoms presented.

"*Discharge from the Nostrils.*—The discharge is usually from one nostril, but can and does very frequently take place from both, especially in advanced cases. It is not limited to the left nostril, but can and does take place from either right or left. (The left probably a little more frequently than the right, which no doubt has given rise to the erroneous impression that the left only was diagnostic.)

"The discharge, no matter from which nostril, is invariably of an adhesive (starchy) nature, which varies in color and consistency (in early stages it is quite thin), usually appearing gradually as a leaden, greyish or greenish-yellow color, sometimes tinged with blood (as when the ulceration has affected vessel walls,) is very often not only slightly odorous, and in many cases distinctly so. The discharge very often ceases from time to time, appearing periodically.

"Very often there is present a slight but persistent adhesive muco-purulent discharge from the inner canthus of either eye.

"*Ulceration of Nasal Mucosæ.*—When the disease is accompanied by a more or less profuse nasal discharge there are usually present erosions and ulceration of the mucosæ of the upper air passage, but only in a very small percentage of the

clinical cases which have come under my observation has the ulceration been situated under the alæ and visible, its situation being far more frequently located higher up, either in the nasal chambers, sinuses, larynx or trachea and thus invisible to the unaided eye. In the absence of visible ulceration of the nasal mucosæ we should therefore not exclude the possibility of glanders being present, as a visible ulceration under the alæ is the exception and not the rule the more frequent visible condition being a roughness and slight discoloration of the nasal mucosæ.

"Ulcerations of the mucous membrane quite often heal and leave a cicatrix.

"*Enlargement and Induration of Sub-maxillary Glands.*—This condition is characteristic of the large majority of clinical cases and may be present even in the abscence at that particular period of observation of any visible nasal discharge.

"This enlargement is due to and results from irritation of the mucosæ of nasal cavities and absorption of poisonons products.

"However, while we find an indurative bosselated condition of the sub-maxillary glands very frequently in glanders, still only in a very few, indeed, do we find that these glands have become adherent to the bone, although quite often adhering to the skin and tissues covering them. Where slight enlargement and chronic induration of the sub-maxillary glands is present which, for want of a better term I call 'woodiness,' even in the absence of any visible nasal discharge, we should always be suspicious of that individual animal as being possibly glandered (this has been proved by the large number of these which will react typically to mallein). The sub-maxillary glands affected in glanders of horses seldom suppurate, although I have noticed in several cases a purulent focus and typical farcy bud in the skin over the gland.

"Enlargement and induration of the glands is not such a frequent accompaniment of glanders affecting mules as in horses. The swelling of the glands may subside from time to time and resume almost normal condition, hence we should not be misled by such occurrences.

"*Farcy Buds and Ulcers.*—Very often the first indication is the presence of a chronic cellulitis and lymphangitis affecting one or both hind limbs, which is usually persistent, and finally breaks out in little 'blebs' on any part from the fetlock up to the perineum, exuding at first a tenacious amber-like fluid, and later forming ulcers.

"In some cases boils and typical farcy ulcers will affect the fore limbs (frequently around fore-arm) and the hind limbs be perfectly normal. Nodules and boils may appear on any part of the body quite suddenly and sometimes disappear again, but more frequently break out and discharge.

"It has been made painfully apparent to me during the past year, in spite of the assertions made by some supposed authorities, to the effect that glanders was not a very contagious disease, that it is a very contagious disease to contact horses, and also a great deal more treacherous and insidious in its nature than ordinarily credited. Further I am convinced these supposed authorities who maintain that glanders is not a very contagious disease, have not had any extended practical experience with glanders, and it also shows the superficial nature of their observations, which have not likely extended further then deal ing with an affected animal, and its stable companion.

"*Present Methods of Dealing with Outbreaks.*—Through the efforts of Dr. J. G. Rutherford, Veterinary Director-General, this province was brought for the first time (during Feb., 1905,) under the Federal Contagious Diseases Act, which provides for the compensation of owners, for animals destroyed for glanders, by authorized inspectors. The supervision and control of this work having thus been assumed by the Veterinary Director-General, the policy embodied in the regulations relating to glanders drafted by him, was adopted as a means if possible of effectively dealing with and eradicating outbreaks. This policy in brief is that all animals affected with or suspected of being affected with glanders, shall be submitted to the mallein test, and all which react to the test shall be forthwith slaughtered. Compensation being paid to owners, for animals slaughtered, as wherein provided for by the Federal Contagious Diseases Act at the rate of two-thirds the animal's value, with the maximum valuation of $150 for one animal. Any animals, which on account of a typical or doubtful reaction, are not slaughtered at time of first test, but are ordered to be kept in quarantine, subject to retest at expiration of 40 days, at the end of which time if they fail to react, are released. If on the other hand they react, they are forthwith slaughtered, and owners compensated as wherein provided for. In the event of any owner objecting to the slaughter of any animals (not showing any clinical symptoms) which have given a typical reaction to a first mallein test, these animals are placed under close quarantine restrictions and must not be allowed to be stabled with other healthy

horses, and are to be fed and watered in separate utensils.

"Owners in such cases forfeit any right which they otherwise may have had to compensation, and these animals are retested at the end of 40 days from time of first test, and again at end of 60 days from the second test. If they again react typically to these subsequent tests, slaughter is enforced; if on the other hand they fail to react and show no clinical evidence of glanders, they are classed as ceased reactors. They are then allowed to be retained as ceased reactors by their owners, under the following restrictions, contained in a departmental form duly served on owners, viz.:—That these animals are not to be sold or otherwise disposed of, and are to be kept available for inspection at any time, by a duly authorized veterinary inspector, and as a means of identification, these animals are branded E.R. on right hoof, and in the event of an animal dying in the interim between visits of inspection, the owner must produce the branded hoof in verification thereof. It will thus be seen that any animal to which, to say the least, 'suspicion must attach' are not allowed to be lost sight of. In view of the foregoing, and with our present knowledge of glanders, it is apparent that these methods are commendable and will bear close scrutiny, and should tend towards eradicating outbreaks, and that with the least material sacrifice.

"The chief aim and object in control work in dealing with glanders must be to restrict all traffic and migrations of reactors, and contact-infected animals as 'invariably where you find an outbreak of glanders in what has hitherto been a healthy stud, that such outbreaks have originated from, and been caused by the introduction on to the premises of an animal affected with occult glanders, and which was not at the time of its introduction showing any of the well marked discernible clinical symptoms, but was to all outward appearances apparently healthy, though nevertheless diseased.' The idea is prevalent and maintained by some that a glandered horse is only capable of transmitting infection when clinically affected, either with a visible nasal discharge or farcy ulcers. Such, however, is erroneous and a fallacy, as while no doubt the animal with the profuse nasal discharge is certainly a more dangerous one than the occult affected animal, still nevertheless the latter must also be considered dangerous if only from the fact that they may develop clinically at any time.

"Even, however, in the absence of any well marked clinical symptoms, if we just consider that an animal can be affected

with a primary pulmonary glanders, involving a considerable area of lung tissue, with suppurating foci, discharging bacilli-laden discharges into bronchi and which are in turn expelled with the normal expiratory movements, still not showing any well marked manifestation of disease, then all doubt should at once be removed as to the dangerous nature and infectiveness of a large number of these occult cases.

"*Modes of Infection.*—Some writers and authorities have claimed and asserted that the watering troughs are the chief if not the only methods by which infection is conveyed from one animal to another. Others again are equally confident and assert the respiratory tract is the chief channel of infection, while others claimed to have proved by all sorts of experiments (?) that it only takes place by direct transmission from animal to animal, by means of the nasal discharge (borne out by their actions in only dealing with affected animal, and its stable companion). Such quibblings are, however, of little significance, as undoubtedly infection can and does take place by either of these modes and channels, as well as by other methods, viz.:—

"a. Cohabitation:—This is the chief factor in an outbreak, where animals are kept housed closely together, under poor hygienic conditions, we always find the disease in a more virulent form, with a consequent larger percentage of infected animals.

"b. Intermediary and mechanical means of infection:—This includes infections by means of infected utensils and articles in use; feed, litter, watering troughs, etc., reinfections from infected premises, attendants, etc.

"c. Direct transmission from animal to animal:—This frequently occurs where animals are stable companions.

"d. Aerial infections:—This would occur from bacilli-laden atmosphere where diseased animals are kept housed closely together, finely divided discharges could be suspended in the atmosphere, on particles of dust or moisture, and thus be carried to and infect horses remotely situated in the same stable.

"e. By inoculation:—This could occur through abrasions or wounds either accidentally or experimentally.

"f. Hereditary transmission:—I have seen foals showing unmistakable evidence of glanders, soon after birth, from a glanderous dam; of course conclusive proof as to congenital disease could only be adduced, while fœtus was *in utero*, or at birth by microscopical and bacteriological examinations; still, nevertheless, I am of the opinion that foals may in some

cases inherit the disease, *in utero*, from a glanderous dam.

"*Malleinization.*—In spite of all writings and contentions to the contrary, I am convinced that mallein in the hands of competent veterinarians possessed of sufficient professional acumen to discriminate between atypical reactions, which may be obtained in horses suffering from conditions other than glanders, and those typical reactions obtained in testing in actual outbreaks of the disease, is a reliable (not infallible) diagnostic agent, and should be used as an aid to the diagnosis of doubtful cases, and as a means of testing contact animals to detect occult cases, and in such where the reactions are typical, that the correctness of mallein can be verified in at least 95 per cent. of the cases. It is frequently asserted that mallein is unreliable because horses suffering from some other condition and febrile diseases than glanders will react. To this my answer is that this is a wrong application, and that any one who is not possessed of sufficient discernment and acumen to differentiate and eliminate these atypical reactions (usually trifling thermic increases) had better transfer his labors to other channels, and not deprecate and bring into disrepute a reliable diagnostic agent as a result of lack of knowledge, incompetency and wrong application.

"At the outset I may say that no hard and fast rule can be laid down as to what does and does not constitute a reaction, and the possibility of determining a uniform reaction to the mallein test, which could be applied classically to all animals submitted to the test, diseased or otherwise, appears to me at present as chimerical and ambiguous, as I fail to see how it can be done by any set 'rule of two,' as a great deal must, and does depend on existing conditions, as well as on the 'Man Behind the Gun.'

"In submitting horses to the mallein test the following factors should always be kept in view, and if followed would reduce mistakes to the minimum:

"(*1.*) *Testing in Actual Outbreaks of Glanders.*—Where one or more animals on the premises are showing unmistakable clinical symptoms of glanders we must consider all of the contact animals on the premises as being possibly infected, and their condition as regards freedom from the disease can only be ascertained by the use of mallein.

"Under these existing conditions any reactions obtained as results of mallein inoculation must be ascribed to glanders infection. Even slight reactions obtained under such conditions

must not be overlooked or ignored, as the degree of thermal reaction is not an infallible criterion of the degree of infection, and in any cases of doubtful reaction the animal should not be given the benefit and classed as healthy, but should be classed as at least suspicious until satisfied otherwise by retest, after a period of from ten to twenty days has elapsed. The overlooking, or ignoring slight reactions obtained in contact-infected animals is the stumbling block of the novice and spells failure in control work, as he who does so will be confronted later by a large number of secondary outbreaks and re-infections.

"Where the thermal reaction recorded and taken at intervals of two hours from the eighth to the eighteenth hour after injection reaches 1.5° F., but does not exceed 2.5° F., over a normal initial temperature, taken prior to injection, and is unaccompanied by any typical local infiltration at point of inoculation or any constitutional disturbance (loss of appetite, increased respirations, etc.,) we should consider such as an atypical or doubtful reaction, considering animal as suspicious and hold for retest. When the same degree of thermal reaction is obtained and is accompanied by either a typical local infiltration at seat of inoculation or constitutional disturbance, animal should be considered as diseased.

"When the thermal reaction recorded and taken as above reaches and exceeds 2.5° F. over a normal initial temperature taken prior to injection and presents a mallein curve (consisting of two summits or peaks and a plateau) or a gradual sustained rise of temperature we should, even in the absence of any organic reaction, consider animal as diseased.

"When we have a typical local infusion or infiltration at seat of inoculation and constitutional disturbance present, even in the absence of any marked thermal reaction, we should consider animal as diseased. High initial temperatures recorded prior to injection in contact animals in actual outbreaks should always be considered as due to incubative glanders infection, and should be classed as diseased, until satisfied otherwise by retest, no matter how they act under the mallein inoculation, as sometimes the high initial temperature will decline (a drop or decline reaction) while in other cases the same or slightly increased temperature will be steadily maintained.

"In the event of those recorded with high initial temperatures giving a typical local infiltration at point of inoculation and constitutional disturbance they should be classed as diseased irrespective of thermic variations.

"(2.) *Testing Animals Suspected of Infection.*—When we are in possession of authentic knowledge and a previous history of animals having been in close contact with other clinically diseased animals for any lengthened period, even in the absence of any clinical symptoms amongst the individuals under control, we should consider them as being contact-infected, and classification of reactions obtained should be based similar to testing in actual outbreaks.

"(3.) *Testing Animals where Symptoms Presented are Indicative of Conditions other than Glanders.*—Very frequently where an owner has a considerable number of horses which have become affected with any of the various infectious respiratory catarrhal conditions, and has been unfortunate enough as to incur the loss of several animals, he becomes imbued with the idea that his stud may be affected with glanders. Or, as sometimes occurs, the attending veterinarian is not quite sure of his diagnosis, or has been unsuccessful in his treatment he may 'hedge,' and as a means of 'cover' suggests to the owner the possibility of it being glanders, thus putting the 'onus of decision' upon the control veterinarian.

"Under all such conditions and circumstances it is well to keep in view the fact that we are dealing with a skeptical laity; hence it may be expedient and incumbent upon the control veterinarian to submit such animals to the mallein test. Before submitting such animals to the test (especially where a number of animals are under control and observation) it is advisable to make a thorough physical examination of each and arrive at a rational diagnosis. It will be found when a number of under control are to be tested, that many of them will prior to injection exhibit high initial temperature, and under mallein inoculation, when the temperature is recorded at intervals of two hours taken from the eighth to the eighteenth hour after injection, that the same temperature is only slightly increased or decreased (does not show a decided drop or decline reaction and is steadily maintained, presenting no mallein curve or peak) and that the typical local infiltration is absent. It will also be found that where the initial temperature was normal prior to injection, that the temperature recorded after injection will only be but slightly increased, seldom if ever reaching 104°F., and unaccompanied by any constitutional disturbance or typical local infusion, hence are atypical reactions. Contrast results of testing such animals with those obtained in testing animals in actual outbreaks of glanders, and it will be found in the lat-

ter that there will be decided increases of temperature after injection reaching sometimes 105°F. and 106°F., also presenting very often a mallein curve, and accompanied in many instances with the typical local infusion and more or less constitutional disturbance.

" *Testing of Healthy Animals.*—In submitting horses to the mallein test without any previous authentic source of infection it will be found that a characteristic reaction is seldom obtained and the temperatures recorded after injection seldom exceed 2.2°F. over a normal initial temperature, and is unaccompanied by a typical local infiltration or constitutional disturbance. When the thermic reaction recorded, however, after injection in presumably healthy horses exceeds 2.5°F. over a normal initial temperature taken prior to injection and presents a mallein curve, or a gradual rise of temperature which is sustained for some time and is accompanied by a typical local infusion or constitutional disturbance, even in the absence of any authentic previous history of exposure to infection, we should consider it as a characteristic reaction indicating glanders, and either destroy animal or place in quarantine for retest.

" *Conditions and Influences which may Affect Temperature of Animals Submitted to Mallein Inoculation.*—In speaking of a normal initial temperature taken prior to injection it would appear that in Manitoba during the greater part of the year that a normal initial temperature must be considered as one which does not exceed 101.8°F. (the average normal temperature of horses in Manitoba from April to December is apparently 101.2°F.)

" In submitting horses to the mallein test they should in all cases be placed under normal conditions, fed and watered as usual. During hot weather stables should be kept well ventilated and cool as a physiological increase of temperature can be induced in horses during extremely hot weather if kept in close ill-ventilated stables.

" During cold weather animals submitted to the test should be prevented from taking a sudden chill, kept away from undue cold draughts; if necessary body should be blanketed. Horses submitted to the test should not be exercised until after period of recording temperatures has elapsed. All animals submitted to the test should be properly restrained and controlled, so that temperatures can be taken without undue resistance or excitability.

" *Local Reaction or Swelling at Point of Inoculation.*—In

judging of a typical local infusion it depends not so much on its actual size as measured in inches across its surface as on its nature, re-shape and size, situation, tenseness, presence of heat and pain. The typical reactionary swelling is nearly circular in outline and has the tendency of increasing its area from the eighth hour after inoculation, and at the same time extends to and involves the deeper seated underlying muscular tissues, to which the skin becomes closely adherent; to the touch it is tense, hot and extremely painful. Cord-like swellings may extend (from central swelling) towards point of shoulder, causing pain and difficulty of shoulder movement when exercised; when the infiltration assumes such a nature as outlined it should be considered as a typical local infusion irrespective of its surface measurements.

"Where a circular infiltration is atypical it rarely exceeds a diameter of three inches across its surface and will be found to be non-painful, soft and moveable, and does not extend to, nor affect the underlying muscular tissues, but remains localized to the skin; does not perceptibly increase its area after the eighth hour, and has the tendency to become absorbed and disappear before the twenty-sixth hour has elapsed and does not extend towards shoulder joints nor causes stiffness.

"Oblong infiltrations should be carefully noted, as even when of large size they are frequently atypical as a dependent œdema may result from the manner in which the skin has been held, causing a loose oblong fold of skin which may become inflated (where a large sized syringe has been used) at injection. These oblong atypical œdematous infiltrations become rapidly absorbed after the eighth hour and should be differentiated from the cord-like swelling, extending from typical circular reaction, ary swelling. They do not extend to or involve shoulder joint, are soft to the touch and not painful, are localized to the superficial tissues and do not extend to nor affect the muscular tissues.

"*Mallein as a Possible Curative Agent.*—During the past four years mallein has been lauded by some as a curative agent; however, I am satisfied that the usefulness of mallein in the control of glanders lies not in any supposed curative effects which it may possess, but in its sensitive diagnostic properties, and should be used as a means of eradication instead of a 'possible curability.'

"At the outset as a possible curative agent at best it could only have an arresting influence during incubative periods, or early stages of infection, as during later stages it certainly has

no arresting nor curative influences, but instead accelerates the course of the disease.

"The recoveries attributed to mallein treatment have been based largely on the assumption that because a number of horses will cease to react when treated at intervals with mallein that they are cured. To this I must take exception, as the fact of a horse having ceased to react is not an infallible criterion of a permanent recovery (proved by ceased reactors becoming clinically affected subsequently).

"No doubt a number of horses undergo recovery from a glanders infection, and it is more reasonable to suppose that these are natural recoveries as a result of phagocytic influences and bactericidal resistance of the animal economy than as a result of a mallein treatment *per se.*

"A number of these so-called recoveries are more apparent than real; some animals recover from primary lesions of the nasal passages, the ulcerations heal, leaving a cicatrix, the discharge ceases, and glands become normal, but very often while the primary lesions affecting the head have disappeared, a secondary infection of the lungs has resulted, constituting an occult, latent or concealed pulmonary glanders, in which state some animals may continue indefinitely without presenting any outward symptoms of disease."

DISCUSSION.

Dr. Simpson:—"I would like to ask Dr. McGilvray if he has ever had a clinical case that did not react? Also do abscesses ever follow the injection?"

Dr. McGilvray:—"Yes, clinical cases quite frequently do not react, but as a rule these have a high initial temperature and are very advanced cases, and reaction is usually an organic and not a thermal one. These cases have a high temperature from absorption of toxic products of the disease and are not always sensitive to the mallein injection. The absence of thermic reaction in these cases is counterbalanced by the organic reaction and this, taken with the clinical symptoms, enables a positive diagnosis to be made. As to abscesses after injection—it is absurd to talk of aseptic injections. We can clip off the hair and wash the site selected with an antiseptic solution, but everyone knows that is not sufficient to sterilize the skin. yet abscesses are extremely rare, and when one does form the horse has usually reacted and the abscess develops into a typical farcy ulcer."

Dr. Dunbar:—"Dr. McGilvray made use of an expression

which I confess I hardly understand as it seems to involve a contradiction in terms. He said the mallein test was a 'perfectly reliable but not an infallible one.' I would like him to explain."

Dr. McGilvray :—"I don't think there is anything contradictory in the expression. What I meant to express was that mallein should be used for testing glanders outbreaks, and not on horses suffering from influenza or other febrile complaints. Such a horse might have his temperature run up after a mallein injection from the natural course of the disease he was suffering from, and this might be wrongly taken for a mallein reaction. Again, repeated mallein injections will induce a tolerance in horses so that after a time they may fail to react although still diseased."

Dr. Torrance :—"I am sure I voice the sentiments of the members present when I say that we have seldom had the pleasure of listening to such an interesting and able paper as that presented by Dr. McGilvray. It is a valuable addition to the literature of the subject, and the Association is to be congratulated upon having it read before them. It deals so fully with the subject that it leaves little to be said, but I would like to ask Dr. McGilvray as to the infectiousness of pulmonary or latent glanders. Has he seen outbreaks of glanders that could be traced to a latent case showing no clinical symptoms? I would also ask what proportion he finds between the clinical cases destroyed and those that simply react without other evidence of disease?"

Dr. McGilvray :—"I might cite the Rathwell outbreak of glanders as illustrating the infectiousness of a non-clinical case. Thirteen horses on the premises were tested and eleven reacted typically and were destroyed. A mare had been disposed of some months previous to Inspector Molloy's visit, and on tracing her up it was found that she had infected various premises at widely separated points, and outbreaks of glanders occurred at Stockton, Wawanesa, Rounthwaite and Lipton, which could be distinctly ascribed to her presence among the horses for periods of from one to three months. In each of these outbreaks one or more clinical cases developed, yet the owners declared that the mare which brought the infection had never shown any visible nasal discharge or other symptoms of disease. She was finally shipped to Lipton, Sask., infected horses in the car with her, developed clinical symptoms herself, and was destroyed. There is also the Boissevain outbreak. In this the owner purchased a team of apparently healthy horses from a

stud where clinical cases of glanders had been destroyed. The team was separated and mated differently some two months before the premises were inspected. On testing, one of the original team and its new mate reacted typically to mallein, and showed after injection slight clinical symptoms (muco-purulent discharge from inner canthus of eye, and tenderness and slight swelling of the submaxillary gland). They were destroyed. Neither had shown any symptoms previous to injection, there had been no glanders in this particular district, and there appeared to be no possible source of contagion other than this contact-infected team. As to the proportion between clinical cases and reactors, I may say that I have tested about 1,000 horses during the past year, and for every clinical case of glanders I find two or three reactors."

Dr. Molloy:—"I have destroyed 209 cases of glanders, and 83 of these were clinical."

Dr. McFadden:—"In the early days in this province we had to deal with glanders without the advantage of the mallein test. The Mennonite Reserve was badly infected during the period between '85 and '90, but in two or three years it was practically stamped out. I recollect one outbreak occurring among the horses of a large firm of contractors. 328 head of horses went into winter quarters and only 91 came out; it was with these 91 I had to do. Every horse of these 91 was roped and carefully examined, and 16 were condemned and shot. The remainder came out all right. Dr. McGilvray's paper is an excellent one, and meets my views on glanders better than anything I have read. No doubt it will be printed and widely read, and there is just one criticism I would like to make. The opening remarks might be construed into a slur upon the veterinarians who had preceded him in the work. Now, these gentlemen are members of this Association, and I don't think Dr. McGilvray has any intention of putting an affront upon them."

Dr. McGilvray:—"It was not the individuals I was criticizing, but their system. I have no wish to cast a slur on anyone, but there is no excuse for a man visiting and revisiting a farm at intervals of six weeks and at each visit destroying one or more animals for glanders."

Dr. Dunbar:—"It has been stated that glanders has not hitherto been considered as contagious a disease as it really is. Some facts seem to support the old view. I know a man who drove a team for years. One of these contracted glanders, and discharged from the nose for a year at least before he

was destroyed. His mate worked with him all this time yet did not catch the disease, and I had frequent opportunities of seeing him for a year afterwards."

Dr. McGilvray:—"Such cases may be explained on the theory of natural immunity, but a year is not a sufficient period to keep an animal under observation, as the disease may remain in an occult state for longer than that."

Dr. McFadden:—"I can cite a case similar to Dr. Dunbar's, that seems to prove that sometimes glanders is not very contagious. A livery man had a fine mare, which was especially valuable for livery. Glanders broke out in his stable, and several horses had to be destroyed; the remainder, being quarantined for 30 days, were then released as healthy. This was before the days of mallein. The mare passed into the hands of a man named Vance, and although I wished to get her I was afraid to do so until two months later. I bought her and had her for two months more, working every day in the livery and apparently healthy. One day I happened to notice her as she drove up to the stable after a long drive, showing a slight discharge from one nostril, and enlargement of one gland. I had her put into a shed apart from the other horses. She developed glanders, but not one of the eighteen livery horses that she had been with for eighteen months took the disease."

Dr. McGilvray:—"Dr. McFadden's case simply bears out my contention that quarantining for a period of 30 days is of no avail as to deciding freedom from disease."

Dr. McArthur then presented a paper on "Tinea Sycosis."*

The President:—"The next order of business is to award the prize for the best essay presented at this meeting. As the conditions limit the competition to those who have never previously contributed, the question is to decide between Dr. Mack and Dr. McArthur. A ballot will be taken and the same scrutineers are invited to act."

The ballot resulted in awarding the prize, on a close vote, to Dr. Mack.

Dr. Whaley:—"I have recently had a case of what I think was tuberculosis in a horse. I have been told that horses cannot have tuberculosis and I would like to know if any member present has had a case."

Dr. Martin:—"I reported a case of tuberculosis in a horse at one of the previous meetings of this Association. Tubercu-

*Will be published in a later number of the REVIEW.

losis is rare in the horse, yet we do come across a case once in a while."

The President: — "Gentlemen, this is one of the best meetings we have had, and yet we must, if we would progress, aim at something still better. I would suggest that your executive have your instructions so that the next meeting should not be crowded into one day. The members who are going to read papers should let the Secretary know some time before the meeting so that a programme could be issued and the members would come prepared to discuss those papers."

Dr. Martin: — "I would suggest a banquet for next year, and perhaps it might be possible to arrange a trip to the new agricultural college."

The President: — "Another matter that we should take up is veterinary education. I think our Secretary has some remarks to offer."

Dr. Torrance: — "You are well aware of the efforts which the veterinary profession is making towards improving the status of the profession by raising the standard of veterinary education in Ontario. A deputation of leading veterinarians recently waited on the Minister of Agriculture, the Hon. N. Monteith, with a petition from the veterinary profession requesting the Government of Ontario to take up the matter of establishing an up-to-date veterinary college for Ontario. The reply of the minister, while, of course, non-committal, was encouraging, and leads us to hope that something definite is about to be done. I have also a private letter from Dr. Rutherford, which confirms the idea that the Ontario Government may establish, or aid materially in the establishment, of a new veterinary college, either in connection with the Ontario Agricultural College, or as a faculty of Toronto University. What seems to be most essential at the present juncture is a united effort on the part of all the members of the veterinary profession to push the matter through. It would be presumptuous for this Association to petition the government of another province, but we can at least strengthen the hands of our brethren in Ontario by expressing our sympathy with their efforts, and I would therefore beg to move the following resolution: —

"WHEREAS, The veterinary surgeons of Ontario are endeavoring to elevate the standard of the profession by the establishment, under government auspices, of a veterinary college with a standard adapted to modern requirements; and

"WHEREAS, Under the proposed arrangements, the interests of Prof. Andrew Smith are to be fully recognized;

"*Resolved*, That this, the Veterinary Association of Manitoba, desire to express their sympathy with the efforts of the profession in Ontario, and their earnest desire to see the establishment of a veterinary college having a curriculum of not less than three terms of six months each; and that copies of this resolution be sent to the Secretary of the Committee and the Secretaries of the various Associations in Ontario."

The motion was seconded by Dr. Whaley and carried unanimously.

The following resolutions were then adopted:—

"That 300 copies of the proceedings be printed and distributed."

"That the semi-annual meeting be held in the city of Winnipeg."

"That Drs. C. Little and C. D. McGilvray be the auditors for the ensuing year."

"That a hearty vote of thanks be tendered the City Council for the use of the committee room."

"That a hearty vote of thanks be tendered the essayists."

The Secretary announced that essays had been promised for the next meeting by Drs. Martin and King.

The meeting then adjourned.

F. TORRANCE, *Secretary*.

NEBRASKA VETERINARY MEDICAL ASSOCIATION.

The meeting was called to order Monday, January 5, at 2 P. M., in room 305, Agricultural Hall, at the State Farm, Lincoln, Neb., by the President, Dr. C. A. McKim, the following members being present: J. S. Anderson, John A. Berg, M. T. Bernard, J. J. Drasky, H. L. Feistner, J. H. Gain, H. N. Hall, J. L. Hoylman, H. Jensen, C. A. McKim, A. T. Peters, V. Schaefer, R. Ebbitt, P. Simonsen, J. D. Sprague, Geo. Sprenger, E. F. Stewart, Geo. P. Tucker, and W. A. Thomas.

Minutes of last meeting were read and approved.

The following gentlemen were elected to membership of Association: W. H. Cole, G. A. Meixel, W. H. Tuck, W. A. Walther, A. A. Munn, J. C. Myers, J. A. Royce, M. D. Strong, A. W. Carmichael, G. Baxter, T. H. M. Knaak, A. H. Krull, R. A. Huntley, I. W. McEachran.

This additional membership has brought the Nebraska As-

sociation into the ranks of the thriving and pushing associations of America, and is the direct result of the law passed to regulate the practice. The law looks very innocent, but the results are very satisfactory.

Dr. A. A. Munn, of Kearney, presented a paper on "Azoturia." It was thoroughly discussed by Drs. Schaefer, Huntley, Jensen, Strong, Hoylman, McEachran, Bernard, and Anderson. Dr. Anderson reports good results from intravenous injections of normal salt solutions, twice in 24 hours. Dr. Hoylman recommended the internal administration of turpentine.

Dr. Drasky reported an outbreak of rabies near Crete, Nebraska, with a great loss of horses, cattle and sheep. The State Veterinarian, Dr. C. A. McKim, reported several outbreaks throughout the State.

Dr. Carmichael read a paper entitled "The So-called Corn-Stalk Disease," recommending the use of sodii hyposulphite and quinine.

Dr. A. T. Peters gave a very interesting account of the work done by the Experiment Station along the line of mould poison; it develops that there are as many different kinds af mould as there are diseases, each producing different symptoms, and requiring different treatment. Dr. Peters has promised us a full report of his work in the near future.

The meeting was then adjourned to meet at 8 P. M. at the Lincoln Hotel for a banquet.

Shortly after 8 o'clock 33 of the happiest looking veterinarians in the State of Nebraska were seated around the banquet table in the club room of the Lincoln Hotel. Dr. M. H. Reynolds, of Minnesota, was the guest of honor. After the elegant eight-course *menu* was disposed of, and while inhaling the fragrant fumes of the havanas, our versatile friend, Dr. A. T. Peters, acting as toastmaster, called upon the following gentlemen, who, in well chosen language, responded to the following toasts: "The Veterinarians in the Philippines," J. J. Drasky; "Our Veterinary Law," R. A. Huntley; "The Younger Members of the Nebraska Veterinary Medical Association," J. C. Meyers; "The Association in '94 and Now," J. S. Anderson; "The Veterinarian in Nebraska in the Early Seventies and To-Day," W. A. Thomas; "Cement," H. Jensen; "The Globe-Trotter," R. Ebbitt; "The Future of the Nebraska Veterinarian," P. Simonsen; "State Boards and Sanitary Laws," M. H. Reynolds. This was the first time in the history of the Nebraska Association that its members had gathered around the

banquet table, and so well pleased were the members present with this our first banquet that it was decided to make this feature a permanent one.

Tuesday, January 16, at 10 A. M., the members of the Association assembled in the new Stock-Judging Pavilion on the State Farm for a surgical clinic, and several interesting operations were skilfully performed. This feature of our meetings will be improved upon, and in the future be held in private.

At 2 P. M. the meeting was called to order in the new Agricultural Hall, by Dr. G. R. Young, of Omaha, the President, Dr. McKim, being temporarily absent.

Under the head of "Reports of Cases," Dr. Hoylman reported great losses of horses and cattle in the western part of the State from what the doctor thought to be corn-stalk disease. The symptoms presented were first coma, delirium and death. The usual symptoms, as most of the practitioners in the State had observed it, is first delirium, then coma and death. A thorough discussion of the subject decided that the cause of the trouble was due to some form of poisoning by moulds, as some of the animals had not been near a corn field. Treatment suggested: One-half ounce doses of potassium iodide every six hours, preceded by 1½ pounds of magnesium sulphate.

Dr. Reynolds spoke of the great similarity of symptoms between corn-stalk disease and what they in Minnesota call hæmorrhagic septicæmia; he considers these two diseases very closely allied.

Dr. J. S. Anderson gave a very interesting report on his operations for roaring. The doctor gave a detailed description of his method, which had resulted satisfactorily in most cases; one failure was reported, and the entire structure exhibited; the animal, whenever it attempted to swallow, would choke, and eventually died from traumatic pneumonia. Dr. Anderson's surgical skill is recognized all over this Western country.

The Association unanimously endorsed the Army Bill.

H. JENSEN, *Secretary.*

NORTH DAKOTA STATE VETERINARY ASSOCIATION.

The annual meeting was called to order at Fargo, Jan. 17, 1906, at 10.30 A. M., with President Treacy in the chair. Roll-call revealed the presence of the following members: Drs. Anderson, Chisholm, Cosford, Crewe, Davidson, Dunham,

Fisher, Fisher, Martin, Robinson, Taylor, Treacy, Van Es, Walker, Winsloe.

The minutes of the preceding meeting were read, and, upon motion, were duly approved.

The Committee on Legislation, through its Chairman, Dr. Treacy, made report on its work and the desired changes secured during the last legislation. Report adopted.

The Finance Committee reports a balance of $47.75 in the treasury. Report adopted.

The application for membership of Dr. Thos. Sims, of Bottineau, N. D., was received. Dr. Sims was elected to membership under suspension of the rules, as otherwise his application would have to be laid over until the following annual meeting.

The election of officers for the ensuing year resulted in the election of the following:

President — E. J. Davidson, Grand Forks.

Vice-President — A. A. Walker, Casselton.

Treasurer — B. C. Taylor, Hillsboro.

Secretary — J. A. Winsloe, Cooperstown.

It was moved by Dr. D. E. Fisher, and seconded by Dr. Martin, that a Committee on Resolutions be appointed by the Chair. Motion carried. The following members were appointed: Van Es, Crewe and Cosford.

It was also moved and seconded that Drs. Fisher, Martin and Taylor act as a committee to formulate plans for the better enforcement of the laws covering veterinary practice and to interview the local members of the Examining Board with a view to securing a statement in regard to the number of permits and certificates issued, fees, etc.

The following members were appointed as the Committee on Legislation: Drs. Robinson, Crewe and Treacy.

The meeting then adjourned until 2.30 P. M.

At the appointed hour the meeting was called to order, with Vice-President Robinson in the chair.

No business being brought up for discussion, the reading of papers was now taken up. The first paper was read by Dr. L. Van Es and was entitled "Clinical Phases of Influenza."* The paper was discussed by all members present.

The following paper was read by Dr. J. W. Robinson, and was entitled, "The Spaying of the Heifer."* The paper was discussed by Drs. Ramsay, Treacy, Cosford, Davidson and Foster.

* Will be published in an early number of the REVIEW.

The next paper was read by Dr. B. C. Taylor and dealt with "The Treatment of Hernia with Nitric Acid."* This paper was thoroughly discussed by Drs. Robinson, Winsloe and Ramsay.

Some time being yet available, Dr. Van Es volunteered a report on a case of "Carcinoma of the Maxillary Sinus,"† and submitted photographs, drawings, and wet specimens of the case.

It was moved and seconded that the Secretary be instructed to furnish the AMERICAN VETERINARY REVIEW with copies of the papers read and of the proceedings of the meeting.

On motion of Dr. Van Es, and seconded by Dr. Treacy, the Chairman was instructed to appoint a Committee on Programme: Appointed Drs. L. Van Es, Chairman; J. W. Dunham and D. Fisher.

After some remarks on the value of a good live stock association and a better understanding among the various members of the profession by Drs. Ramsay and Foster, the meeting adjourned until the following day, which, according to resolutions passed during the previous meeting, was to be devoted to clinical work.

On January 18 the members met at the Stock Judging Hall of the Agricultural College, where the following cases were presented:

Sequestrotomy of the lower jaw and expulsion of molar, by Drs. Davidson and Taylor.

Removal of carcinoma of orbit by Drs. Martin and Cosford.

Cunean tenotomy and cautery for spavin, by Dr. Foster.

Cautery for spavin, by Dr. Sims.

Cautery of spavin, by Dr. Chisholm.

Operation for papillomatosis of oral mucosa, by Dr. Walker.

Cautery of spavin, by Dr. Dunham.

Spaying of heifer, by Drs. Cosford and Robinson.

Extraction of molar, by Dr. Hinebauch.

Expulsion of molar, by Drs. Fisher and Burton.

Besides the cases operated on, the following were exhibited: Bursatti; synovitis and peri-arthritis of hock-joint; obstruction of upper air passage; lymphangitis of hind leg.

The following veterinarians were in attendance during the meeting and the clinics: Drs. O. F. Anderson, Christine; J. Burton, Wheaton, Minn.; J. P. Chisholm, Lisbon; S. E. Cosford, Jamestown; W. F. Crewe, Devil's Lake; E. J. Davidson,

* Published in "News and Items," this number REVIEW.

† Will be published in an early number of the REVIEW.

Grand Forks; J. W. Dunham, Fargo; D. Fisher, Grandin; G. D. Fisher, Hope; J. P. Foster, Huron; F. J. Glynn, Aberdeen; T. D. Hinebauch, Tower City; M. Holcomb, Fargo; J. A. Kierman, Aberdeen, S. D.; R. G. Lawton, Watertown, S. D.; L. A. Nutting, Great Falls, Montana; C. H. Martin, Valley City, N. D.; R. A. Ramsay, Denver, Colo.; J. W. Robinson, Coal Harbor, N. D.; Thos. Sims, Bottineau; B. C. Taylor, Hillsboro, N. D.; R. H. Treacy, Fargo; L. Van Es, Agricultural College; A. A. Walker, Casselton; J. A. Winsloe, Cooperstown.

C. H. MARTIN, *Acting Secretary.*

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order January 3, 1906, at 8.30 P. M., Dr. Roscoe R. Bell, the President, in the chair. Roll-call was dispensed with. Minutes of the previous meeting were adopted as read.

Members present: Drs. T. A. Keller, C. W. Shaw, R. Dickson, E. B. Ackerman, J. L. Robertson, C. Schroder, Roscoe R. Bell, C. E. Clayton, F. C. Grenside, J. E. Ryder, R. W. Ellis, R. W. McCully, R. S. Mackeller, and D. J. Mangan.

Visitors: Drs. W. Reid Blair, Leonard Pearson, J. V. Laddey, C. S. Atchison, Morris, Castor, Hendren, Hayes, Kingston and Clarence J. Marshall. Also, students of the New York-American Veterinary College.

Dr. Leonard Pearson delivered an address on the "VIII. International Veterinary Congress." The Doctor told of the origin of the Congress, its methods, purposes and its prosperity. Incidentally he spoke about the fine veterinary school in Budapest.

Dr. W. Reid Blair, of the New York Zoölogical Park, read a paper on "Actinomycosis of a Salivary Gland in a Grizzly Bear.* Dr. Blair exhibited some specimens of this condition.

Dr. J. V. Laddey spoke of his experiences in the Philippine Islands.

The Secretary read all the names that were on the veterinary registers of New York, Kings and Queens Counties.

The President said he would have them printed in proof form, for the next meeting.

Dr. Charles Lamensdorf was elected member of the Association.

* Published in March REVIEW.

The By-laws were suspended and Dr. Leonard Pearson was unanimously elected an honorary member of the Association.

Drs. W. Reid Blair and J. V. Laddey each received a vote of thanks for their efforts towards the evening's entertainment.

The meeting was then adjourned.

D. J. MANGAN, *Secretary.*

* * *

The regular monthly meeting was called to order by the President, Dr. Roscoe R. Bell, on February 7, at 8.30 P. M. The roll was dispensed with. Minutes of previous meeting were adopted as read.

Members present: Drs. R. S. Mackeller, A. O'Shea, C. E. Clayton, R. W. Ellis, W. C. Bretherton, C. W. Shaw, F. C. Grenside, T. A. Keller, Wilfred Lellmann, D. J. Mangan, Roscoe R. Bell, J. L. Robertson, and C. Schroder.

Visitors: Drs. Blair, Schreiber, Assing, Childs, Brotheridge, and S. Strauss, M. D. Also, students of the New York-American Veterinary College and others.

Dr. Bell read a letter, which he received from Dr. Williams, the President of the State Society, regarding the practicing of veterinary medicine in New York State without a license.

Members and visitors suggested various methods to be employed in getting evidence against violators of the veterinary law.

Dr. Bell had copies of the Greater New York Veterinary Registers, which were distributed among the members.

Discussions on azoturia, iodi, kali and influenza, which were taken up separately, brought out some valuable information.

Dr. S. Strauss asked the members if they came across any carcinomatous tumors he would be glad to receive them and pay for same. This request was followed by a discussion on malignant tumors.

The following gentlemen were proposed for membership: Drs. R. Schreiber, H. J. Brotheridge and J. E. Assing.

Owing to the fact that there were few of the Board of Censors present it was decided to act on the propositions without their endorsement. The applicants were therefore duly elected members of the Association.

Dr. Clayton moved and it was regularly seconded, that the Association have its Treasurer pay John Brooks, the janitor, $2.00 per month for services rendered on meeting nights.

Meeting adjourned. D. J. MANGAN, *Secretary.*

WASHINGTON VETERINARY MEDICAL ASSOCIATION.

The United States College of Veterinary Surgeons held its twelfth annual banquet Saturday evening, February 24th, 1906, which celebrated its twelfth birthday. The college is young but healthy and prosperous for its age.

The banquet was held at Freund's, where all similar functions are held, and the dining hall was beautifully decorated with flowers and flags; the tables were covered with college colors,—black and orange, and the students as well as their guests were all clad in evening dress.

The toastmaster, Mr. R. H. Duenner, class of '06, with a kind word of welcome, bade the guests and students to be seated. A very well arranged and tempting *menu* was placed before them, and after every one had done justice to the eatables, cigars were lighted, and the evening turned into one of toast and stories.

Dr. Lamb, M. D., a guest, responded to "Reversions". He told how he had watched the growth of the institution and how it had struggled in its younger days, but now success was coming and the horizon was clear and prosperity was the only possible thing.

Dr. C. Barnwell Robinson, V. S., Dean, spoke on the "Duties of the Practitioner." He pointed out the methods in which a practitioner should shield his profession. He said the field was calling for men, and that the men would always have plenty to do. He outlined work for the men and told how they should protect themselves, protect the animal, and protect the client. His remarks received much attention and were generously applauded.

Prof. G. A. Prevost, LL.B., one of the trustees of the college, spoke of the great meaning of the college motto, "Vestigia Nulla Retrorsum." He said one's footsteps should never turn backwards, but keep up the steady, forward movement; if we ever found ourselves slipping backward faster than we were going forward, simply turn around, and our progress in the forward direction would be gained.

Dr. C. M. Emmons, M.D., gave an interesting talk on "Students vs. Professor." He told how a student looked from a professor's standpoint—the schoolroom platform, how he saw the wise thoughts of the students through the examination paper. This talk received much attention from the students and they applauded heartily.

C. C. Weeks, representing the graduating class, delivered a clever talk, telling the juniors and freshmen how it felt to hold the dignified position of a senior.

G. H. Grapp, '07, returned thanks for the kind words of '06, and H. S. Gamble, '08, represented the freshmen.

The banquet was under the careful supervision of a committee of E. P. Yeager, '06, chairman; Dr. H. Bosley, '03, treasurer; G. H. Grapp, '07, secretary; M. P. Smith, '06; C. B. Shoemaker, '08; R. C. Talty, '07; I. A. Phinney, '08.

The guests of the evening were: Dr. F. B. Gage, U. S. A., Dr. S. B. Lamb, and J. P. McDonough. Others present were the faculty and classes as follows: Prof. G. A. Prevost, Dr. Frazier, Dr. C. B. Robinson, Dr. H. Bosley, Dr. C. M. Emmons, Dr. C. C. Walker, Dr. M. H. Walmer, Dr. E. S. Walmer, Dr. Drake, Dr. J. C. Heide, Dr. W. W. Alleger, R. H. Duenner, O. H. Gratz, E. Hartley, J. P. Keifer, C. J. Fry, W. S. Pollard, E. P. Yeager, M. P. Smith, W. F. Davis, C. C. Weeks, R. W. Wolf, J. H. Bakelaar, R. C. Talty, F. Meisenheimer, A. C. Stever, H. F. Hungleford, A. A. Pearson, E. L. Thornton, R. E. Ferneyhough, C. M. Mansfield, R. B. Blume, E. H. Drake, R. M. Corey, G. H. Grapp, R. J. Cooley, A. Monk, H. S. Gamble, C. B. Shoemaker, L. Prevost, I. A. Phinney, C. F. Sapp, T. A. Metcalf, J. H. Donahue, H. H. Adair, and J. L. Vega.

C. M. MANSFIELD, *Chairman Pub. Comm.*,
Wash. Vet. Med. Asso.

MASSACHUSETTS VETERINARY ASSOCIATION.

The regular monthly meeting was held Wednesday evening, January 24th, at 8 P. M. There were fifteen members present. In addition to the regular business, it was voted the President be instructed to have the Secretary call a special meeting before the hearing at the State House on the bill for compensation to owners of glandered horses.

Dr. Rogers reported an interesting case of an Irish terrier dog. First noticed that he would not follow, later showed pain, cried out, got up, turned around and laid down again. Vomited one day only, bowels loose, appetite good, assumed position of acute gastritis and would continually lap inside of hind leg. X-ray showed nothing.

Operation.—Found intussusception of about four inches of intestine with adhesions of outer walls with fibrous bands. Dog recovered. Meeting adjourned at 10.45 P. M.

F. J. BABBITT, *Secretary.*

A special meeting of the Association was held at Young's Hotel at 8 P. M., Feb. 21st. Routine business was dispensed with, and there was a general discussion of the bill relative to compensating owners of horses killed because affected with glanders. It was voted that this meeting take the place of the regular February meeting. Adjourned at 10.30 P. M.

F. J. BABBITT, *Secretary.*

NEWS AND ITEMS.

THE youngest veterinarian registered in Pennsylvania is 22 years old; the oldest is 89.

"I CANNOT be without the REVIEW."—(*Chas. A. McKim, State Veterinarian of Nebraska.*)

DR. HAL. C. SIMPSON, Secretary of the Iowa Veterinary Association, Denison, Iowa, reports practice quite good throughout the State.

DR. J. I. GIBSON, formerly State Veterinarian of Iowa, has located in Des Moines, and formed a practice partnership with Dr. D. H. Miller.

DR. AQUILLA MITCHELL, A. V. C. '91, is taking a short course at Cornell. Formerly with the Army, which he resigned to go to South Africa, he will probably return to the service.

WE have in hand the splendid paper by Prof. W. L. Williams entitled "Empyema of the Facial Sinuses of the Horse," profusely illustrated. This paper was read before the last annual meeting of the New York State Veterinary Medical Society, and will be published in the May REVIEW.

DR. JAMES C. MYERS (C.V.C.), of Galena, Illinois, has taken the practice of Dr. Charles A. McKim, of Norfolk, Neb., the latter having recently been appointed State Veterinarian of Nebraska. Dr. Myers was operated upon March 1st for chronic appendicitis, and is rapidly recovering.

DR. W. W. DIMOCK, N. Y. S. V. C., '05, is now assistant to Dr. N. S. Mayo, Chief of the Bureau of Animal Industry of Cuba. We have a communication from the latter on a new dip for the destruction of the *Boöphilus australis*, the tick which in Cuba carries the infection of Texas fever, and besides is a parasitic pest. It will be published in the May number.

"PROCEEDINGS" OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION, Cleveland Meeting, August, 1905, has been distributed to the membership, and the delay is amply compensated for by the excellency of the volume, which reflects the

greatest credit upon Dr. Lyman, chairman of the Publication Committee. It is entirely worthy of the National Association.

VETERINARY SURGEON DESMOND, Government Veterinarian of South Australia, is among the best rifle shots in that country. On January 22d he won "The Kingship" of the Metropolitan Rifle Club, at the Magill Gully Range, defeating all the best local talent. At the conclusion of the contest he was crowned "King" amid cheering, and the President in a neat speech congratlated Dr. Desmond, who he said was "a consistent shot, a good sport, and a jolly good fellow."

TREATMENT OF HERNIA WITH NITRIC ACID.—Before the North Dakota Veterinary Medical Association at its recent annual meeting, Dr. B. C. Taylor, of Hillsboro, N. D., presented the following: "I have used it for the last eight years with good success. I first clip the hair off a little larger than the hernia; then I take a brush and apply the acid over the entire bunch, extending about half an inch around the enlargement. One application is all that is necessary in ordinary cases. If the hernia is very large, it may be necessary to apply it the second time after the parts are entirely healed."

THE VETERINARIAN AND THE MEDICAL PROFESSION.—Feb. 24, Dr. D. Arthur Hughes (well-known to the readers of the REVIEW through his valuable articles almost monthly) made an extemporaneous address before the Medical Faculty of St. Louis University Medical College (Marion Sims Beaumont College) on "The Prevention of Disease by Means of Meat Inspection," in which he corrected the misstatements made in the London *Lancet* of Dec. 30, which were the subject of editorial remarks in the February REVIEW. The St. Louis City Bacteriologist, Dr. Baldwin, and Pathologist Dr. Gradwohl, as well as members of the medical faculty of Missouri State University, were present. At the close of the address of three-quarters of an hour numerous questions on the Government work were asked. . . . On March 1st the same gentleman addressed the Medical Society of the City Hospital Alumni, St Louis, on "The United States Government Work Against Trichiniasis in Swine." The address followed that of Dr. E. T. Taake, on "Trichiniasis," with presentation of three patients sick of the disease, and microscopical specimens taken from the infested pork and from the gastrocnemius muscle of one of the patients. Dr. Hughes' address aroused the greatest interest and called forth a fusillade of questions on Federal inspection, he receiving a hearty vote of thanks at its close.

VETERINARY MEDICAL ASSOCIATION MEETINGS.

Secretaries are requested to see that their organizations are properly included in the following list.

Name of Organization.	Date of Next Meeting.	Place of Meeting	Name and Address Secretary.
American V. M. Ass'n.....	Aug. 21-24, '06	N. Haven, Ct.	J. J. Repp. Phila., Pa.
Vet. Med. Ass'n of N. J.....	July 12-13, '06.	Asbury Park.	W. H Lowe, Paterson.
Connecticut V. M. Ass'n.....	Call of President	New Haven.	B. K. Dow. Willimantic.
New York S. V. M. Soc'y...	Sept. 11-12-13	Buffalo.	G. T. Stone, Binghamton.
Schuylkill Valley V. M. A....	June 20.	Reading.	W. G. Huyett, Wernersville.
Passaic Co V. M. Ass'n.....	Monthly.	Paterson, N. J.	H. K. Berry, Paterson, N. J.
Texas V. M. Ass'n...	....	.....	E. L. Lewis, Waxahachie.
Massachusetts Vet. Ass'n.....	Monthly	Boston.	F. J. Babbitt, Lynn, Mass.
Maine Vet Med. Ass'n.....	2d Wed. April.	Belfast.	R. E. Freeman, Dexter.
Central Canada V. Ass'n.....	.....	Ottawa.	A. E. James, Ottawa.
Michigan State V. M. Ass'n...	.....	.....	Judson Black, Richmond.
Alumni Ass'n N. Y.-A. V. C..	April, 1906.	141 W. 54th St	W. C. Miller, N Y. City.
Illinois State V. M. Ass'n.....	July 12, 1906.	Bloomington.	F. H. Barr, Pana.
Wisconsin Soc. Vet. Grad.....	Call of Pres't.	Sheboygan.	S Beattie, Madison.
Illinois V. M. and Surg. A....	.....	Decatur.	C. M. Walton. Rantoul.
Vet. Ass'n of Manitoba	Not Stated.	Winnipeg.	F. Torrance, Winnipeg.
North Carolina V. M. Ass'n...	.....	.....	T. B. Carroll, Wilmington.
Ontario Vet. Ass'n.....	.....	....	C. H. Sweetapple, Toronto.
V. M. Ass'n New York Co....	1st Wed. May	141 W. 54th St	D. J. Mangan, N. Y. City.
Ohio State V. M. Ass'n.....	. ...	Columbus.	W. H. Gribble, Wash'n C. H.
Western Penn. V. M. Ass'n...	1st Wed. ea mo	Pittsburgh.	F. Weitzell, Allegheny.
Missouri Vet. Med. Ass'n.....	.....	.....	F. F. Brown, Kansas City.
Genesee Valley V. M. Ass'n...	July 12, 1906. .	Roch't'r, N.Y.	J. H. Taylor, Henrietta, N.Y.
Iowa State V. M. Ass'n.....	.....	... .	H. C. Simpson, Denison, Ia.
Minnesota State V. M. Ass'n	July, 11, 12, '06	Minneapolis.	C. A. Mack, Stillwater.
Pennsylvania State V. M. A...	.....	.....	C. J. Marshall, Philadelphia
Keystone V. M. Ass'n.....	2d Tues. April	Philadelphia.	A. W. Ormeston, 102 Herman St., Germantown, Pa.
Colorado State V. M. Ass'n...	1st Mon. in June	Denver.	M. J. Woodliffe, Denver.
Missouri Valley V. Ass'n	.....	....	B. F. Kaupp, Kansas City.
Rhode Island V. M Ass'n....	June and Dec.	Providence.	T. E. Robinson, Westerly, R. I
North Dakota V. M. Ass'n....	.....	.....	J. A. Winsloe, Cooperstown.
California State V. M. Ass'n...	Mch. Je. Sep, Dc	San Francisco	C. H. Blemer, San Francisco.
Southern Auxiliary of California State V. M. Ass'n....	Jan. Apl. Jy, Oct.	Los Angeles.	J. A. Edmons, Los Angeles.
South Dakota V. M. A.....	July, 1906.	Brookings.	E. L. Moore, Brookings.
Nebraska V. M. Ass'n.....	.....	.....	Hans Jenson, Weeping Water
Kansas State V. M. Ass'n....	Jan. 8-9, '07.	Topeka.	Hugh S. Maxwell, Salina.
Ass'n Médécale Veternaire Francaise "Laval,".....	1st & 3d Thur. of each month.	Lect. R'm Laval Un'y Mon.	J. P. A. Houde, Montreal.
Alumni Association A. V. Col..	April each yr.	New York.	F. R. Hanson, N. Y. City.
Province of Quebec V. M. A...	.....	Mon. & Que.	Gustave Boyer, Rigand, P.Q.
Kentucky V. M. Ass'n.....	.....	.....	D. A. Piatt, Lexington.
Washington State Col. V. M. A.	Monthly.	Pullman, Wa.	Wm. D. Mason, Pullman.
Indiana Veterinary Association.	.....	....	E. M. Bronson, Indianapolis.
Iowa-Nebraska V. M. Ass'n..	.....	.....	A. T. Peters, Lincoln, Neb.
Louisiana State V. M. Ass'n..	.....	.....	E. P. Flower, Baton Rouge.
Twin City V. M. Ass'n.....	.....	.....	S. H. Ward, St Paul, Minn.
Hamilton Co (Ohio) V. A....	.....	Cincinnati.	Louis P. Cook, Cincinnati.
Mississippi State V. M. Ass'n..	August, 1906.	Agricultural College.	J. C. Robert, Agricultural College.

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OUR readers certainly should feel gratified at the efforts publishers are putting into veterinary books at this time; for surely some very attractive and interesting lists are to be found here and there among the advertising pages of recent issues of the REVIEW.